THE BOARD OF TRADE
of
KANSAS CITY, MISSOURI

April 1, 1947

To the Grain Handling
and Processing Industry:

Welcome:

The Kansas City Board of Trade cordially invites all of the terminal and sub-terminal elevator and processing plant managers, superintendents and assistants to attend the 18th Annual Convention of the Society of Grain Elevator Superintendents, to be held here at the Hotel Continental on May 15-16-17.

The owners and operators anticipate a very worthwhile program, packed full of profitable ideas which no one can afford to miss.

Remember, we'll be looking for you! Plan to attend today.

Yours very truly,

(Signed) R. H. Sturtevant
President

Grain

THE MAGAZINE OF PLANT MANAGEMENT AND OPERATION

April, 1947

"Grain"

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DEAN M. CLARK
Publisher and Editor
FRANK J. SLEPICKA
Business Manager—Advertising
A. D. LOGAN
Circulation Manager

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PROGRAM LOOKS GOOD

Your preliminary program looks very good. Have heard from others that it is going to be one of the finest conventions yet held. — Gilbert P. Lane, Plant Manager, Arcady Farms Milling Co., Chicago.

BUSINESS CONFERENCES AHEAD

May—

1-3 American Feed Manufacturers' Ass'n, Drake Hotel, Chicago.
5 American Corn Millers Federation, Continental Hotel, Chicago.
5-7 Millers' National Federation, Edgewater Beach Hotel, Chicago.
15-17 Society of Grain Elevator Superintendents and Processors, Hotel Continental, Kansas City, Mo.
26-29 National Fire Protection Ass'n, Palmer House, Chicago.

June—

2-6 Association of Operative Millers, Hotel Nicolett, Minneapolis.
3 International Institute of Milling Technology, Hotel Nicolett, Minneapolis.

K. C. Preparing For Your Visit

VISITORS WELCOME

You don't have to belong to our association to attend our meetings, General Convention Chairman Ward E. Stanley of Standard Milling Co., Kansas City, is advising those writing him about the industry-wide conference to be held there at the Hotel Continental on May 15-16-17. "We're always delighted to have some one 'look in on us', as the saying goes, because less than one percent of those who visit our meetings go away without at least expressing their avowed intention of becoming active members. And what more can one ask? . . . Yes, everyone's more than welcome."

SAYS CONVENTIONS INSTRUCTIVE

After having such an enjoyable and instructive convention in Cedar Rapids last year, both my wife and I are anxious to attend the Kansas City conference on May 15-16-17. It will take a lot to keep us away. We received confirmation of our hotel reservation this morning.—J. H. Irwin, Manager, Western Grain Co., Ltd., Fort William.

K. C. A WELL-KNIT CHAPTER

From its founding right straight through, the Kansas City SOGES Chapter has been one of the bright spots on the "horizons" of the association's national officers. Well integrated, offering a balance of helpful programs, requiring a minimum of effort on the parts of its own officers, that well-known Kansas City "do-it-now" spirit is doubtless partially responsible for the excellent attendance consistently enjoyed at their monthly meetings. You'll sense their spirit at the May 15-16-17 convention.

GOOD DELEGATION FROM BUFFALO

On account of the box car situation, we really have been hitting the ball with our grain movement. Cornelius Halsted, John Mack, and myself are coming to the Kansas City SOGES convention, and we will probably have several more.—Jim Burns, Pillsbury Mills, Inc., Buffalo Chapter Secretary.

OFFICERS, ET AL, TO MEET MAY 14

Officers, Directors, Committeeman, and Chapter Officers are expected to arrive at the Hotel Continental, Kansas City, for a dinner meeting on the evening of May 14, according to word from SOGES Prexy Harold Wilber, A. E. Staley Mfg. Co., Decatur, Ill. Mr. Wilbur is working out the details of the program now, which will include assignments of convention responsibilities, discussions of the proceedings, and other important details which all contribute to the making of the outstanding meetings this progressive body is noted for.

LOOKS FORWARD TO SEEING FRIENDS

Thanks for your letter and the honorary membership card of the Society of Grain Elevator Superintendents. You know how interested I am in this group, and I take a lot of satisfaction when I see the towering elevators on the sky-lines to realize that I was privileged to have the friendship of so many in this fine industry.

I am happy that I have been able to arrange my affairs so as to coordinate with the date of the 18th annual SOGES convention in Kansas City, May 15-16-17. I will enjoy being with you.—Bennett Chapple, Assistant to President, The American Rolling Mill Co., Middletown, Ohio.

"Do YOU ALL have one with a Southern accent?"

SECRETARY'S OFFICE TO CLOSE FOR CONVENTION

After Monday, May 12th, the office of the Secretary of the Society of Grain Elevator Superintendents will be closed for the duration of the Kansas City Convention, May 15-16-17. The staff will accompany a two-ton truck which will cart the association's convention paraphernalia to the Hotel Continental for the big event, and hope to arrive there by noon of the day preceding the convention. All communications should be directed accordingly.

DUNCAN HEADS LADIES COMMITTEE

O. B. Duncan of the Salina Terminal Elevator Co., heads the Chapter committee making all the plans for the array of interesting features to be presented the wives and daughters visiting the SOGES convention in Kansas City, May 15-16-17.

PARTY FOR LADIES

Visiting convention ladies will be courteously entertained during the coming SOGES convention at the Hotel Continental, Kansas City, May 15-16-17. Many unusual innovations are planned for them. One of the highlights will be a reception tendered them by the B. J. Many Co., Chicago —an event they always look forward to.

CORSAGES FOR THE DARLINGS

The unique and highly appreciated kindness extended all the ladies attending the SOGES conventions of supplying them with corsages, which courtesy was inaugurated and is anually continued by Joe Kozak and Russell Maas of Screw Conveyor Corp., Hammond grain plant equipment manufacturers, will be another of the delightful "highlights" enjoyed by wives and daughters in attendance at this year's SOGES convention in Kansas City, May 15-17.

"And has your boy learned to talk yet?"

"My, yes! We're teaching him to keep quiet now."—Topeka Bulletin.

MAKE HOTEL RESERVATIONS TODAY

Hotel reservations for the SOGES convention at Kansas City's Hotel Continental, May 15-16-17, indicate that this year's convention is going to be attended by many welcome "first-timers"—in addition to the large attendance accruing from learning of its worth through attending in previous years.

Those who have not sent in hotel reservations should do so at once. Rooms are still available, but the number is diminishing every day. Delegates not accompanied by their wives should plan to double up with their friends wherever possible.

Information given the hotel should include: Approximate hour and date of arrival, accommodations and approximate price desired, and time and date of departure. Mention that you will be attending the convention of the Society of Grain Elevator Superintendents when writing the Hotel Continental, as the association has rooms set aside. Neglecting to do so might result in a turn-down, so don't give up trying.

A dog has many friends because he wags his tail instead of his tongue.

SOGES DOING FINE WORK

I have your letter of the 29th and thank you very much for the honorary SOGES membership card which you enclosed.

I think you had better leave my check for dues with the Society as they probably can use it in the fine work they are doing.

/s/ W. R. McCarthy
Capitol Elevator Company
Duluth, Minnesota

SENDS BEST WISHES

Please accept my sincere thanks for your kindness in sending me the honorary membership card in the Society of Grain Elevator Superintendents for the year 1947, and I wish you and those associated with you a most successful year.

/s/ Hon. N. M. Paterson
The Senate
Ottawa, Ontario

NEW OFFICERS AT K. C.

New officers were elected by the Kansas City SOGES Chapter on March 18, and include: President, Claude Darbe, Simonds-Shields-Theis Grain Co.; 1st Vice President, William Combs, Webb Belting Co.; 2nd Vice President, George Spafford, Wyandotte Elevator, Standard Milling Co., and Secretary-Treasurer, Orrin E. Kinman, Cargill, Inc.

The new Board of Directors include: William Kamp, Ralston-Purina Co.; Ray Riggenbach, Kansas Soya Products, Inc.; Paul Secrets, Waggoner-Gates Milling Co.; Charles Peterson, retired; Simonds-Shields-Theis Grain Co.; Roy Herod, Langdon Supply Co., and William Gravatt, Davis-Noland-Merrill Grain Co.—O. E. Kinman, Sec'y-Treas.

APPROVES PROGRAM

I think our Kansas City convention program indicates a fine line-up of outstanding speakers. We should have an exceedingly successful and helpful conference. Let's be sure to give the round-table discussions, which are always so fruitful of outstanding ideas and developments, plenty of time.—Ed J. Raether, Brooks Elevator Corp., Minneapolis.

THEY'LL DRIVE

Yes sir, the Pows and the Poultons will drive to the Kansas City SOGES convention on May 15-16-17. Wouldn't miss it for the world. Hope to ride in a new Chrysler Windsor club sedan. —Percy C. Poulton, Ft. William.

Superintendents To Hold Valuable Operational Conference Kansas City, May 15th, 16th, 17th

WEDNESDAY EVENING—MAY 14

HOTEL CONTINENTAL
(See Bulletin Board for Location)
Presiding—Harold C. Wilber, A. E. Staley Mfg. Co., Decatur, Ill., President S.O.G.E.S.

7:30 Pre-Convention Meeting of All Members Helping With Convention, or Willing To Do So
8:00 Officers, Directors and Committeemen, and Chapter Officers, Directors, Committeemen—Round Table Discussion on Chapter Problems, Programs, New Membership, Feature Meetings, et al.
8:30 Directors' Business Meeting, Including Chapter Presidents and Secretaries.
9:00 Adjournment.

THURSDAY MORNING—MAY 15

8:00 Registration [including Ladies]—Roof Garden, Hotel Continental

Presiding—Harold C. Wilber, A. E. Staley Mfg. Co., Decatur, Ill., President S.O.G.E.S.

9:15 Call to Order; Opening Remarks—President Wilber.
9:20 Welcome to Kansas City—Frank A. Theis, President, Simonds-Shields-Theis Grain Co., Kansas City.
9:45 We're Glad To Be Here—R. B. Pow, Reliance Grain Co., Ltd., Fort William.
9:50 My Stewardship—Harold C. Wilber, A. E. Staley Mfg. Co., Decatur, Ill.
9:55 Secretary-Treasurer's Report—Dean M. Clark, "GRAIN", Chicago.
—Standing Tribute to the Memory of Departed Members.
10:00 Address—Edgar S. Miller, Technical Editor, "American Miller & Processor," Kansas City.
10:15 Discussion.
10:20 Bugs, And What We're Doing About Them—Dr. B. N. Smallman, Science Service Branch, Dominion Department of Agriculture, Winnipeg.
10:50 Discussion.
11:00 10 minute stretch period.

Presiding—John Belanger, Manitoba Pool Terminals, Ltd., Port Arthur, First Vice President S.O.G.E.S.

11:10 Sanitation—The New War Cry of the U. S. Food & Drug Administration—R. K. Durham, Millers' National Federation, Chicago.
11:30 Discussion.
11:35 Fumigation Experiments—Ted C. Manning, General Superintendent, Uhlmann Grain Co., Kansas City.
11:45 Discussion.
11:50 Committee Appointments—Nominations, Resolutions, 1948 Convention Program, New Membership, et al.
11:55 Adjournment.

THURSDAY AFTERNOON—MAY 15

12:30 Luncheon—Roof Garden, Hotel Continental.

Presiding—Claude Darbe, Simonds-Shields-Theis Grain Co., Kansas City, President Kansas City Chapter.

1:30 Labor Trends—Stanley Garrity, Prominent Kansas City Attorney.
1:55 Discussion.

Presiding—Clifford A. MacIver, Archer-Daniels-Midland Co., Minneapolis, Second Vice President S.O.G.E.S.

2:00 Man Engineering—Charles J. Winters, Superintendent, Public Grain Elevator, New Orleans.
2:20 Discussion.
2:25 Our Labor Relations Program—Robert R. Bredt, Fruen Milling Co., Minneapolis.
2:40 Discussion.
2:45 "What's Cooking?"—Ted C. Manning, Uhlmann Grain Co., Kansas City.
2:55 Discussion.
3:00 10-minute stretch period.

Presiding—Harold C. Wilber.

3:10 Your Fire Prevention Efforts—Frank E. "Slim" Carlson, Underwriters Grain Association, Chicago.
3:25 Discussion.
3:30 Dust Explosion Prevention Studies; Proposed NFPA Code Changes, Choke Relieving Devices, and Kindred Pertinent Findings and Pointers—Charles E. Harbin, Underwriters Grain Association. Chicago.
3:45 Discussion.
3:50 Our Canadian Explosion Research Program—Percy C. Poulton, N. M. Paterson & Co., Ltd., Fort William.
4:00 Discussion.
4:05 Educating Employees on Housekeeping and Maintenance—Oscar W. Olsen, Globe Elevator Division, F. H. Peavey & Co., Duluth.
4:15 Discussion.
4:20 SOGES-Sponsored Tramp Iron Removal Studies—T. L. Musser, Western Stevedoring Co., Erie, Pa.
4:30 Discussion.
4:35 New Findings on Static—Clifford A. MacIver, Archer-Daniels-Midland Co., Minneapolis.
4:40 Discussion.
4:45 Experiments in Arresting Deterioration in Grains—Tom Strid, Strid Grain Co., Green Bay, Wis.
4:55 Discussion; Examination of Samples.
5:00 Announcements About Tonight's Dinner, Committee Meetings, Tomorrow Morning's Tours, Tomorrow's Unique Luncheon, and Tomorrow Afternoon's Panel Session.
Adjournment.

THURSDAY EVENING—MAY 15

6:30 Dinner [Ladies included]—Roof Garden, Hotel Continental.

Presiding—Ward E. Stanley, General Convention Chairman, Standard Milling Co., Kansas City.

7:30 Address—Paul E. Dittemore, Editor, "Milling Production," Minneapolis.
7:45 The Relation of the Futures Market to Your Elevator or Processing Plant Operations—Richard Uhlmann, President Uhlmann Grain Co., Chicago.

8:15 Colored Movies of Two Recent Fires in Minneapolis, Taken by Vic Champlin, Shown by Clifford A. MacIver, both of Archer-Daniels-Midland Co., Minneapolis.
8:30 Discussion.
8:45 Adjournment.
9:00 Committee Meetings.

FRIDAY MORNING—MAY 16

Kansas City Chapter Committees in Charge.
(Meet in Lobby)

9:00 Inspections and Tours:
Corn Products Refining Co.
Ralston-Purina Co. feed plant and soybean processing plant.
Flour Mill.
Santa Fe Elevator (has a car dump).
General Motors Assembly.
(Ladies invited on any tour).

FRIDAY AFTERNOON—MAY 16

12:30 Fish and Beer Lunch—Roof Garden, Hotel Continental.

Presiding—Charles J. Winters, Public Grain Elevator. New Orleans.

1:30 Address.

Panel Discussion
Presiding—Clifford A. MacIver.

1:45 Elevating and Conveying; Power and Transmission—Co-Chairmen: Charles Peterson, retired, Simonds-Shields-Theis Grain Co.; Grover C. Meyer, Kansas City Power & Light Co., both of Kansas City, and Their Panel of Experts.

Presiding—John Belanger.

2:15 Cleaning, Grading, Mixing, Binning and Storage—Co-Chairmen: Claude Darbe, Simonds-Shields-Theis Grain Co.; Ted C. Manning, Uhlmann Grain Co., both of Kansas City, and Their Panel of Experts.

Presiding—Harold C. Wilber.

2:45 Drying—Panel of Experts to Answer Your Questions.
3:15 10-minute stretch period. ,

Presiding—Oscar W. Olsen, Globe Elevator Division, F. H. Peavey & Co., Duluth.

3:25 Car Unloading Experiments—Charles J. Winters, Public Grain Elevator, New Orleans, and Panel of Authorities.
4:15 Magnesium Shovels—Lloyd Forsell, Albert Schwill & Co., and Bernie Kline, Hales & Hunter Co., both of Chicago.
4:20 Discussion.
4:25 Air Conditioning of Cars While Unloading—Robert Lare, Butler-Welsh Grain Co., Nebraska City, Neb.
4:35 Discussion.

Presiding—Harold C. Wilber.

4:40 Open Panel Discussions—All Miscellaneous Questions.
5:00 Announcements about tomorrow morning's round table discussions, et al.
Adjournment.

FRIDAY EVENING—MAY 16

Committee Meetings.
Night Baseball Game (Ask any Kansas City Member for details).

SATURDAY MORNING—MAY 17

Presiding—Ward Stanley.

9:00 Varieties and Identification of Grain—Dr. Ted Bayfield, Standard Milling Co., Chicago.
9:25 Discussion.

Presiding—Clifford A. MacIver.

9:30 Round Table.
Corn—Harold C. Wilber, A. E. Staley Manufacturing Co., Decatur, Ill.
Milling Wheat—James L. DeJarnette, Continental Baking Co., Kansas City.
Feed & Cereal Processing—Jesse F. Pugh, The Quaker Oats Co., St. Joseph, Mo.
Soybeans, Flax & Linseed—William Kamp, Ralston-Purina Co., Kansas City.
Barley & Malting—James Auld, Hales & Hunter Co., Minneapolis.
12:00 Adjournment.

SATURDAY AFTERNOON—MAY 17

1:30 Respiration and Deterioration of Grain in Storage—Dr. Max Milner, Kansas State College, Manhattan, Kans.
2:10 Discussion.

Presiding—John Belanger.

2:15 Review of Morning's Round Table Discussions by Chairmen.
2:30 Maintaining Interest in Safety—Charles J. Winters, Public Grain Elevator, New Orleans.
2:45 Safety Contest Awards—Oscar W. Olsen, Globe Elevator Division, F. H. Peavey & Co., Duluth.
2:55 10 minute stretch period.

Presiding—Harold C. Wilber.

3:00 Business Session—Committee Reports.
Unfinished Business.
New Business.
Election of New Officers.
Adjournment.
1947-48 Directors' Meeting.
1947-48 Committees' Meetings.

SATURDAY EVENING—MAY 17

GRAND BALL ROOM

5:00 Reception.

Presiding—Grover C. Meyer, General Chairman, SOGES Associates Committee, Kansas City Power & Light Co., Kansas City.

6:00 Banquet.
7:30 "What's Next on the Program?"—Bennett Chapple, Assistant to the President, The American Rolling Mill Co., Middletown, O. Honorary SOGES Member.
8:00 Associates' Entertainment Program.

Our Ladies

WEDNESDAY EVENING—MAY 14

5:00 Registration—Hotel Continental.

THURSDAY—MAY 15

8:00 Registration—22nd Floor, Hotel Continental.
10:00 Meet in Hotel Lobby for Bus to William Rockhill Nelson Art Institute.
12:30 Luncheon—Green Parrot, as Guests of the Kansas City SOGES Chapter.
1:30 Sight-Seeing Tour through Residential Section of Kansas City.
2:30 Matinee Performance at Midland Theatre, as Guests of the Kansas City SOGES Chapter.
6:30 Dinner (With the Men), Hotel Continental, the Ladies to be the Guests of the Kansas City SOGES Chapter.

FRIDAY—MAY 16

9:00 Meet in Hotel Lobby for Inspection Tour of your Choice, with the Men to: Corn Products Refining Co.
Ralston-Purina Co. feed plant and soybean processing plant.
Flour Mill.
Santa Fe Elevator.
General Motors Assembly Plant.
1:00 Luncheon—Hotel Continental.
3:30 Reception—Courtesy of Mr. and Mrs. Ben J. Many, B. J. Many Co., Chicago (See Bulletin Board for Location).

SATURDAY—MAY 17

Day Purposely Left Open for Shopping, et al.
5:00 Reception—Grand Ball Room, Hotel Continental.
6:00 Banquet—Grand Ball Room, Hotel Continental.
7:30 "What's Next on the Program?"—Bennett Chapple, Assistant to the President, The American Rolling Mill Co., Middletown, O., Honorary SOGES Member.
8:00 Associates' Program.

Chicagoans Invite Others

For Special Convention Cars

SPECIAL CARS FROM CHICAGO

Anticipating an unusually heavy attendance from Chicago and points north, northeast, and east to the Kansas City convention, scheduled at the Continental Hotel, May 15-16-17, the Chicago SOGES Chapter has chartered two private cars on the Santa Fe's "Scout," train No. 1, leaving Chicago the night of May 14th at 10:00 p.m. (Central Standard Time) and arriving in Kansas City at 8:00 a.m. the following morning.

(Of course officers, directors, committeemen, and Chapter officers will go ahead of time to attend the important Directors' meeting on the evening of May 14th, so earlier schedules are also given herewith.)

Delegates wishing to travel with the Chicago group are cordially invited to send their checks for ONLY the berth charges on the Pullman for the Chicago to Kansas City run, and/or return accommodations from Kansas City to Chicago, details of which, including all taxes, are:

Lower berth	$ 4.03
Upper berth	3.05
Compartment for 1	7.99
Compartment for 2	11.33
Drawing room for 1	10.01
Drawing room for 2	14.66

Returning

Streamliner parlor seat	$ 2.53
Pullman car seat	2.70

It is possible to return, by so arranging your ticket at time of purchase, from Kansas City via St. Louis or via Omaha at slightly higher fares and Pullman charges.

Fares

For the sake of those who might want to know the present cost of a ticket between Chicago to Kansas City, the first-class round-trip, including tax, is $26.16; round-trip coach or chair car, including tax, $20.93. (Fares may be advanced before convention-time.)

Train Schedules

Lv. Chicago	Ar. Kansas City
10:00 p.m. (SOGES Special)	8:00 a.m.
9:30 a.m. (Streamliner)	5:00 p.m.
(Coach and Parlor seats available)	
12:01 p.m. (The Chief)	9:40 p.m.
($2.90 extra fare, plus parlor car)	

Returning Schedules; Streamliner Data

Returning from Kansas City on Sunday, May 18, the Chicago crowd have planned to take "The Chicagoan," running mate to the "Kansas Cityan" —a new, light-weight streamlined train equipped with coach and parlor car seats. Coach fares apply on this train, in both directions, where coach seats are used, and first class fares apply where parlor car seats are used. Connections for east-bound passengers are convenient from this special train. The parlor car seat price is shown below.

Lv. Kansas City	Ar. Chicago
2:00 p.m. (SOGES Special)	9:30 p.m.
8:00 a.m. (Grand C'y'n Ltd.)	6.00 p.m.
6:10 a.m. (Super Chief)	1:45 p.m.
($4.35 extra fare plus parlor seat)	
3:50 a.m. (The Chief)	1:00 p.m.
($2.90 extra fare plus parlor seat)	

Reservations are necessary on the Super Chief and The Chief, just as they are on the two trains the Chicago Supers will use. Accommodations for other than the two convention specials, which are found to be not available through your local ticket agent, will be attempted for you through your SOGES Secretary's office, if ample time is allowed before May 13 when the office will be closed for the duration of the convention.

Send Your Berth Money Only

So, if you are desirous of joining with the Chicago Supers on either or both the going and returning trip, figure out the accommodations you desire, enumerate your wishes in your letter, and send your check to your SOGES office at 2800 Board of Trade Building, Chicago 4, Ill.—NOT for any part of your rail fare—but ONLY for the sleeping accommmodations you will want on the going trip, from Chicago to Kansas City, PLUS your seat charges for the returning trip (to Chicago only). After May 12th checks should go to C. E. Graham, Santa Fe Railroad, 175 W. Jackson Blvd., Chicago 4, as your Secretary's office will be closed. (In writing Graham, be sure to mention the SOGES cars.)

Accommodations are not too plentiful, and the handling of such a movement as this must, of necessity, be placed on a "first come, first served" basis. So if you would like to join the Chicago crowd then you know what to do.

BENNETT CHAPPLE TO TALK

Bennett Chapple, Assistant to President, The American Rolling Mill Co., Middletown, Ohio, long an honorary member of the Superintendents' Society is going to be present at that organization's 18th annual convention at Kansas City, May 15-16-17, according to word from SOGES President, Harold C. Wilber, A. E. Staley Mfg. Co., Decatur, Ill.

Widely known and admired in all circles from coast to coast, Mr. Chapple undertook to conduct a series of experiments looking towards the development of a better and longer-lived metal for grain handling and processing plant spouts. That was at the Duluth SOGES convention in 1936. After considerable study a five-year experimental installation was made in one of the huge terminals in Baltimore. The results were unbelievable, but the war came on and the government would not permit release of any statistical figures.

Mr. Chapple will tell the convention the findings in the SOGES-fostered time and money saving project and, in addition, will be the featured speaker at the Saturday night banquet, speaking on "What's Next On The Program?" His hosts of friends in the industry will be highly elated over his honoring them with his highly coveted presence and remarks. In the many SOGES convention programs he has participated in he has always left a message of value that is remembered above all else. The Society can consider itself fortunate that it has such a staunch supporter as Bennett Chapple, the "Ironmaster."

The ambassador's dinner was a wonderful party. Everybody was so well-dressed, so formal, and so stiff.—Phoenix Flame.

HE'LL GET HIS WISH

Perhaps the best thing GRAIN has ever published since its inception appears on Page 8 of the February issue It is a most noteworthy article. Still we must say the importance of the article was underlined in no way. It had a most indifferent heading and there were no places named in plants, etc, and not even a signature. I believe this article is worthy of much more consideration.

Can the SOGES not arrange to have the author of that article appear on our Kansas City program, May 15-16-17? I believe he has got something to tell us! Please do your best to have him appear. We are looking forward to the Kansas City conference.—Percy C. Poulton, N. M. Paterson & Co., Ltd., Fort William.

[Ed.: This article was intriguing, having to do with the testing of dust from handling government surplus dried potatoes through grain elevators, the discovery of over 50% inert earth in the starchy residue, and the explosability thereof as ascertained from tests conducted by the authoritative Underwriters' Laboratories. Inasmuch as relatively few elevators were involved, and inasmuch as the movement of the potatoes was completed before the tests could be carried out. we published this story without trying to accomplish more than help direct thinking along the lines pursued, namely the desirability of exercising extreme care with any dusty product.]

FOUNDERS TO BE FETED

Ten SOGES members listed below have belonged to the Superintendents' Society, without interruption, since its inception. That's a record of which to be mighty proud and these men are, you may be sure.

The Charter Members' Club, as they are known, have invited those who have belonged to the SOGES since the first three years of its formation to join their ranks—which action will doubtless be taken just as soon as the charter members put the finishing touches on their own activities.

Custom dictates that the lowest membership number holder is automatically chairman of the group, and here they are:

19. Joseph A. Schmitz, Chief Weighmaster, Chicago Board of Trade.
20. O. W. Randolph, O. W. Randolph Co., Toledo.
29. Henry G. Onstad, James Stewart Corp., Chicago.
40. Oscar W. Olsen, F. H. Peavey & Co., Duluth.
41. O. B. Roberts, B. F. Goodrich Co., Chicago.
45. William H. Gassler, Calumet Elevators, Chicago.
53. Henry Richardson, Richardson Scale Co., Clifton, N. J.
66. Hart-Carter Co., Minneapolis.
81. Arthur Keenan, U. S. Rubber Co., Chicago.
109. E. J. Martin, Norfolk Elevator Co., Norfolk.

HE DESERVES HONOR

I was certainly delighted to receive from you my honorary membership card in the Society of Grain Elevator Superintendents. As I have told you before, this is an honor that I have the utmost respect for, and consider it one of the finest compliments I have ever received. Please express to all of your officers and directors my sincere appreciation.

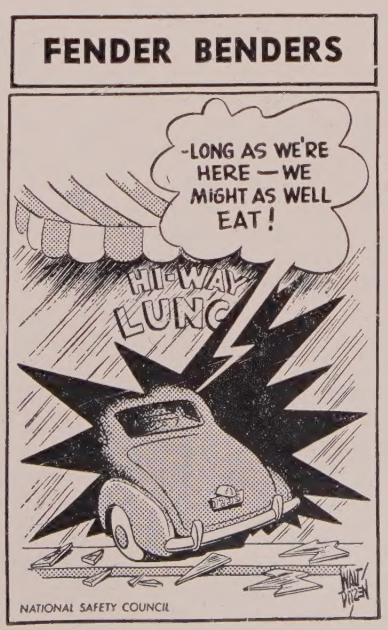
I note that your annual convention is going to be in Kansas City on May 15-16-17, and at this writing I have every intention of being here at that time, so that I will plan on attending some of your meetings.

Thank you again for your courtesy.

Frank A. Theis, President
Simonds-Shields-Theis Grain Co.,
Kansas City, Mo.

SHOW FIRE MOVIES

The Minneapolis Chapter had a very good turnout on Mar. 11. Dr. Dave Stern, associated with Richardson Scale Co., gave some figures on fire losses, etc., and colored movies of the Union and Brooks elevator fires were shown by Captain Conway of the Minneapolis Fire Department.—James Auld, Hales & Hunter Co., Chapter Secretary.



PRESIDENTS OF THE SOGES

*Christopher E. Wood, General Superintendent, Baltimore & Ohio Railroad Elevators, Baltimore, Md., Sept. 1, 1930 until his death in Aug. 13, 1931.

†Elmer H. Karp, General Superintendent, Burlington Railroad Elevators, Chicago, to fill President Wood's unexpired term.

Arthur C. Benson, Superintendent, Arrow Mills, Inc., Texas City, Tex., March 30, 1932 to April 7, 1933.

*Frank L. Neilson, Vice President, Cargill, Inc., Minneapolis, April 7, 1933 to June 12, 1934.

William H. Gassler, General Superintendent, Rosenbaum Brothers, Chicago, June 12, 1934 to April 2, 1935.

Oscar W. Olson, General Superintendent, F. H. Peavey & Co., Duluth, April 2, 1935 to June 15, 1936.

*Henry S. Cox, Superintendent, Rialto Elevator, Star Grain Division, General Mills, Inc., Chicago, June 15, 1936 to June 16, 1937.

†Sigurd S. Orstad, Resident Manager, Federal Grain, Ltd., Fort William, June 16, 1937 to March 30, 1938.

Edward J. Raether, Superintendent, Brooks Elevator Corp., Minneapolis, March 30, 1938 to April 5, 1939.

Ted C. Manning, General Superintendent, Uhlman Grain Co., Kansas City, Mo., April 5, 1939 to April 3, 1940.

Percy C. Poulton, General Superintendent, N. M. Paterson & Co., Ltd., Fort William, April 3, 1940 to June 11, 1941.

Paul H. Christensen, General Superintendent, Van Dusen-Harrington Co., Minneapolis, June 11, 1941 to April 11, 1942.

Gilbert P. Lane, Plant Manager, Arcady Farms Milling Co., Chicago, April 11, 1942 to June 19, 1943.

R. B. Pow, Resident Manager, Reliance Grain Co., Ltd., Fort William, June 19, 1943 to June 17, 1944.

Herbert C. Brand, Superintendent of Elevators, The Quaker Oats Co., Cedar Rapids, June 17, 1944 to May 25, 1946.

Harold C. Wilbur, Superintendent of Elevators, A. E. Staley Manufacturing Co., Decatur, Ill., elected May 25, 1946.

*Deceased.
†In Other Business Now.

THE RECORD

Sept. 1, '30, Sherman Hotel, Chicago.

April 6-8, '31, Sherman Hotel, Chicago.

Oct. 12-14, '31, Rice Hotel, Houston, Tex.

March 28-30, '32, Sherman Hotel, Chicago.

April 3-7, '33, Sherman Hotel, Chicago.

Feb. 10-12, '34, Statler Hotel, Buffalo.

June 8-11, '34, Sherman Hotel, Chicago.

March 30-31, April 1-2, '35, Schroeder Hotel, Milwaukee, and Sherman Hotel, Chicago.

June 12-15, '36, Hotel Duluth, Duluth, and Hotel Nicollet, Minneapolis.

June 14-16, '37, Royal Edward Hotel, Fort William, and Prince Arthur Hotel, Port Arthur.

March 27-30, '38, Hotel Continental, Kansas City, Mo.

April 3-5, '39, Hotel Pfister, Milwaukee.

April 1-3, '40, Royal York Hotel, Toronto.

June 9-11, '41, Hotel Radisson, Minneapolis.

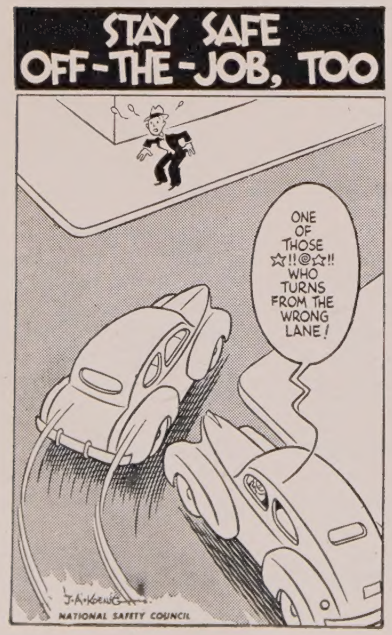
April 9-11, '42, Paxton Hotel, Arthur.

June 18-20, '43, Hotel Duluth, Duluth and June 21, Fort William-Port Arthur.

June 15-17, '44, Medinah Club, Chicago.

May 23-25, '46, Hotel Roosevelt, Cedar Rapids.

May 15-17, '47, Hotel Continental, Kansas City, Mo.



HOPES TO ATTEND

I am in receipt of your very kind letter enclosing for me an honorary SOGES membership for the year 1947 and an invitation to be present at your annual convention in Kansas City, May 15-16-17. I would like to be present and will keep the date in mind and see whether I can make it.

We at the plant all enjoyed your convention last year and were glad to have you take a trip through the mill.

Best wishes for continuation of your very successful years.

/s/ Arthur Poe, Manager
The Quaker Oats Company
Cedar Rapids, Iowa.

LOOKING FOR GOOD REPORT

I shall be particularly interested in any action taken by the Kansas City SOGES convention concerning the recommendations included in the dust explosion prevention codes.

At previous meetings of the SOGES that I attended the material presented by the speakers was both interesting and instructive, and I hope that this year's meeting will be as successful as the ones that have been held in the past. I trust that the usual full description of actions taken at the meeting will appear in GRAIN.—Hylton R. Brown, Senior Engineer, Bureau of Mines, USDI, Eastern Experiment Station, College Park, Md.

CONVENTION BANQUET SUGGESTIONS

Does your soup burn you? Then gargle it for four minutes. This will be much better than trying to hide it in your napkin.

Should a bone stick in your throat, do not cough it across the room. Rather modestly reach for it with your fork, but for Goodness Sake don't make a fuss about it.

Should you bite your tongue, don't swear. Just let it hang out in the air until thoroughly cooled. This will apprise the other guests of your bite and relieve your feelings.

Should a hunk of steak jump off your plate, grab it quickly and throw it at your meekest neighbor. This will awaken him and help to make the dinner merry.

Should you eat so much that you really need to unbutton something, go behind the door and do it.

Should you accidentally splatter the table cloth, absent-mindedly cover it with a piece of buttered rye bread. Be sure to place the buttered side down so as to prevent it slipping off the spot.

WILL TRY TO ATTEND

I have your very nice letter with which you enclosed an honorary membership card for the current year. I appreciate this very much, as I assure you that I still have a keen interest in the many friends I have in the Association and the progress you are making. I haven't been to one of the Society's meetings for some time and, if it is at all possible, I will try and attend at least one of the sessions at your annual convention in Kansas City, May 15-16-17, to renew my old friendships.

Thank you again for your courtesy in extending my membership card.

/s/ C. C. Blair, Manager,
Norris Grain Company
Duluth, Minnesota

MILLWRIGHT TRAINING TROUBLE

You will note from the clipping enclosed to you that at a recent meeting of the Association of Operative Millers in Minneapolis lengthy discussion was devoted to the subject of training millwrights for flour mills.

We are having just as much trouble in the elevators employing and keeping qualified millwrights, and if other grain centers are experiencing the same difficulty it might be advisable to offer an exchange of ideas on how to obtain or train millwrights. —Clifford A. MacIver, A-D-M Co., Minneapolis, SOGES Vice President.

N.F.P.A. MEETING MAY 26-29

The annual convention of the National Fire Protection Association is scheduled for May 26-29 at the Palmer House, Chicago. Discussion on proposed changes in the Dust Explosion Hazards and in the Suction and Venting codes, among others under which the grain handling and processing industry operates, will be discussed, and rejected or adopted. An alert committee from the Chicago SOGES Chapter is expected to be on hand looking after the interests of other plant operators, according to Leonard Danielson, Chicago SOGES Chapter prexy.

JAMES BROWN BACK AT K. C.

James Brown, recently with Shellabarger Mills at Salina, Kan., has returned to Kansas City, and is with Rodney Milling Co., as Elevator Superintendent.

INDIANAPOLIS SETS DATE FOR INAUGURATING CHAPTER

Word just received as we were going to press advises us that SOGES Director M. M. "Mac" Darling, Acme-Evans Co., has set May 9th as the date when the Indianapolis area Supers will break bread at the Riley Hotel and launch their much coveted Chapter organizational activities. A Chapter, embracing Danville and Paris, Ill., Evansville, Terre Haute, Lafayette, Ft. Wayne, Decatur, Lawrenceburg and other important Indiana points, plus several Ohio and Kentucky representatives will be the goal attempted.

Commencing with almost 100% representation from the Indianapolis market, plus over a dozen active members within a 75 mile radius, the meeting promises to get under way with much greater impetus than where few or no members already know of the progressive work of the SOGES nor take an active interest in the worthy projects undertaken.

General Chairman Darling requests that GRAIN extend a cordial invitation to everyone in this area, plus any visitors who happen to be near, to join with the Indianapolis body in launching this newest of Chapters. In addition to Harold C. Wilber of Decatur, Ill., SOGES prexy, and the association's secretary, several delegates from the Chicago Chapter are planning to help with the inaugurational work. Non-members are particularly cordially invited. This is an opportunity to learn first-hand what this body is doing in the way of contributing worth-while advancements for the entire industry.

Mr. Darling's address is 902 W. Washington, Indianapolis. Please advise him you are coming.

The housing shortage isn't responsible for our inability to see a model home. We don't know any models.—Phoenix Flame

BUFFALO HOLDS MEETING

We had a very fine dinner meeting on Mar. 20 at the "40 & 8" Club. All of our time was devoted to trying to adopt a constitution and by-laws.

Relative to the Chicago Chapter's discussion about the desirability of permitting windows and doors on the first floor of the plant to remain open into the track shed, there is only one house on the Buffalo waterfront that unloads or loads cars inside the plant. All the others load and unload outside in car sheds. I will check on the inland plants.—James Burns, Pillsbury Mills, Inc., Secretary, Buffalo SOGES Chapter.

HAVE 100% ON WATERFRONT

We have 100% membership in our new Chapter on the waterfront (marine) elevators here right now, and are making inroads on the inland plants. Our Chapter should really amount to something if the spirit now shown is really continued. John Mack, as you will readily notice, is doing a bang-up job on obtaining new memberships.—James Burns, Pillsbury Mills, Inc., Buffalo SOGES Chapter Secretary.

APPOINTS EXPLOSION COMMITTEE

The Kansas City SOGES Chapter has appointed O. B. Duncan of Salina Terminal Elevator Co., and Claude L. Darbe of Simonds-Shields-Theis Grain Co., as its Dust Explosion Hazards Committee. They, with others interested, have just completed a study of the National Fire Protection Association's Dust Explosion Hazards Code, and report that they "consider it to be quite complete."

The committee would not, however, recommend that special emphasis be given to: (1) Venting all leg heads to the outside to provide release in the event of an explosion; (2) Prohibit the carrying of matches in or around the plant, and (3) Trapping of tramp iron by the use of magnet or other practical means.

The Kansas City body congratulates the Dust Explosion Committee of the SOGES on the work that they are doing in this field, and urges the fullest co-operation with the NFPA at all times.

CHICAGO SUPERS IN OUTING

Another famous summer outing is being scheduled by the members of the Chicago Supers Chapter, according to Lloyd Forsell of Albert Schwill & Co., chairman of the event. Omitted only during gas rationing, for a number of years the chapter members have been taking their wives and families away for a sociable week-end together in Wisconsin — joined by members from Milwaukee and points north and west.

Maltster Forsell has booked accommodations this year at Nippersink Lodge, Genoa City, Wis., the date to be decided at the next meeting. "We cordially invite as many others to join us as can do so," he states.

New electronic stop watch clocks 1/millionth of a second—just the length of time we usually hold on to our pay check.—Phoenix Flame.

MEMBERSHIP SWELLING IN SEASONAL SURGE

All Looking Forward to Annual Convention

That the annual SOGES convention is becoming more widely considered a "must" is partially reflected this year by the wholesome, welcome influx of new members who wish to be in "good standing" before this important conference opens its doors. However, it is also obvious from the locale of the newcomers that daily ploddings on behalf of the membership is an activity heartily subscribed to.

"True, the association is dipping into many new projects all the time," according to Vice President Clifford A. MacIver, Archer-Daniels-Midland Co., Minneapolis, "all beamed at further assisting the industry. The Superintendents' Society can be mighty proud during all the rest of its existence for just its contributions to the business so far," he proudly stated, "and we think our present studies will shortly hit an all-time high." New members just announced include:

653 Edward D. Crockett, Superintendent, Larabee Flour Mills Co., North Kansas City, Mo.
654 Clarence F. Brown, Superintendent, McMillen Feed Mills, Marion, O.
655 William L. Hamilton, Richardson Scale Co., Chicago.
656 Carl Thomer, Strong-Scott Manufacturing Co., Minneapolis.
657 Rudy J. Skala, R. J. Skala Co. Chicago.
658 M. E. Mattimore, Superintendent, Clover Leaf Elevator, Rice Grain Co., Toledo.
659 Herman Wilhelm, Superintendent, Monarch Elevator, Van Dusen-Harrington Co., Minneapolis.
660 Victor W. Buys, Mine Safety Appliance Co., Minneapolis.
661 Leo Foster, Kansas City, Mo.
662 Edward P. Escher, Manager of Sales and Engineering, Screw Conveyor Corp., Hammond, Ind.
663 M. Joseph Kaufman, General Superintendent, Santa Fe Elevator Corp., Chicago.
664 Frank A. Deebach, Superintendent, Rialto Elevator, Star Grain Division, General Mills, Chicago.
665 P. Edward Costello, Superintendent, Theo. Hamm Brewing Co., St. Paul.
666 Robert D. Henderson, Arcady Farms Milling Co., Chicago.
667 William S. Jordon, Engineer, North American Companies, Toronto.
668 Elmer Asbridge, Quaker Rubber Co., Kansas City, Mo.
669 Edwin M. Crawford, Superintendent, Carthage Mill, National Biscuit Co., Carthage, Mo.
670 Lester G. Ziller, Vice-President, Bearing Distributors Co., Kansas City, Mo.
671 Andy Olson, Grain Superintendent, Cargill, Inc., Kansas City, Mo.
672 William Huge, Central Soya Co., Ft. Wayne, Ind.
673 William Enke, Jr., Vice-President, Stratton Grain Co., Chicago.
674 Olin M. Hoisington, Superintendent, Kansas Milling Co., Wichita.
675 Karl Goetsch, Superintendent, Anheuser-Busch, Inc., St. Louis.
676 Arnold E. Metcalfe, Manager Saskatchewan Pool Terminals, Ltd., Winnipeg.
677 S. A. Werner, Elevator Superintendent, Illinois Cereal Mills, Inc., Paris, Ill.
678 W. R. McCarthy, Capitol Elevator Co., Duluth.
679 Dale W. McMillen, President of Central Soya Co., and of McMillen Feed Mills, Inc., Decatur, Ind.
680 E. B. Evans, Manager, Evans Elevator Co., Decatur, Ill.
681 Charles H. Huskisson, Elevator Superintendent, Russell-Miller Milling Co., Alton, Ill.
682 Jake C. Kintz, J. C. Kintz Co., Cedar Rapids.
683 Colin S. Gordon, Vice-President, Quaker Oats Co., Chicago.
684 Cecil VanFleet, Superintendent, National Oats Co., Cedar Rapids.
685 E. A. Christie, Superintendent, Quaker Oats Co., Cedar Rapids.
686 Roy K. Zimmerman, Superintendent, Superior Grain Corp., Buffalo.
687 Frank C. Blodgett, Superintendent, Victoria Elevator Co., Davenport.
688 Philip Hackney, Elevator Superintendent, Pillsbury Mills, Inc., Wichita.
689 Alfred E. Sorenson, Plant Superintendent, Cargill, Inc., Cedar Rapids.
690 C. Raymond Pound, Mechanical Engineer, Cargill, Inc., Cedar Rapids.
691 William J. Hooper, Superintendent, Farmers Grain Coopera-
692 Lumir J. Ehernberger, Assistant Manager, Golden West Grain Co., Schuyler, Neb.
693 O. Albin Halberg, Elevator Superintendent, Pillsbury Mills, Inc., Springfield, Ill.
tendent, Pillsbury Mills Inc., Minneapolis.
694 R. C. Bakke, Pillsbury Mills, Inc., Minneapolis.
695 Leon F. Rothlisberger, Elevator Foreman, International Milling Co., New Prague, Minn.
696 S. F. Willits, Elevator Superintendent, Morten Milling Co., Dallas.
697 Steven W. Wilder, Wilder Grain Company, Cedar Rapids.
698 Clark R. Yager, Vice-President, Ballard & Ballard Co., Inc., Louisville.
699 Harmon T. Ogdahl, Superintendent, Wapsie Valley Feed Co., Independence, Ia.
700 J. L. (Roy) Welsh, Butler-Welsh Grain Co., Omaha.
701 G. Lionel Parsons, President and Manager, Goderich Elevator & Transit Co., Limited, Goderich, Ont.
702 Dunkin A. Welte, Farmers Grain Dealers Ass'n of Iowa, Des Moines.
703 H. T. McGill, H. T. McGill, Houston, Texas.

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704 Raymond S. Wood, General Manager, Link-Belt Co., Minneapolis.
705 William W. Meyer, President & Engineer, General Blower Co., Morton Grove, Ill.
706 Frank M. Walter, Superintendent, Publicker Industries, Inc., Philadelphia.
707 Ted R. Schreiner, Plant Manager, Ind.
708 N. R. Adkins, Ralston-Purina Co., Lafayette, Ind.
709 Merrill L. Gidley, Superintendent, Farm Crops Processing Corp., Omaha.
710 Wayne Barnes, U. S. Rubber Co., Omaha.
711 Edwin Schultz, Superintendent, Union Equity Cooperative Ex-
712 Buel Powell, Union Equity Co-Operative Exchange, Enid, Okla.
713 Colman W. Clarke, Feed Mill Superintendent, Cargill Inc., Minneapolis.
714 L. A. Hunt, William Herndier, and Frank Hanke, Schlitz Brewing Co., Milwaukee.
715 Wilbur C. Thompson, Assistant Superintendent, Burlington Elevator, Norris Grain Co., North Kansas City, Mo.
716 Cedric E. Routh, Imperial Belting Co., Osawatomie, Kans.
717 William T. Combs, Webb Belting Co., Kansas City, Mo.
718 William A. Schaub, B. F. Goodrich Co., North Kansas City, Mo.
719 John C. Meyer, Superintendent, Evans Elevator Co., Champaign, Ill.
720 Tom G. Luby, Superintendent, Cia Molinera Del Peru, Lima, Peru, S. A.
721 D. Arthur, Deline, Superintendent, Standard Milling Co., Minneapolis.
722 William Kellogg, Manager, Bunge Elevator Corp., Minneapolis.
723 Sam H. Eppard, Richards & Conover Hardware, Kansas City.
724 Gene Gray, Thompson-Hayward Chemical Co., Kansas City.
725 Paul R. Secrets, Superintendent, Waggoner-Gates Milling Co., Independence, Mo.
726 R. K. Jenkins, Assistant Superintendent, Midland Flour Mills, No. Kansas City.
727 Orville L. Gehlbach, Ralston-Purina Co., Denver
728 William Mackay, Superintendent, Spencer Kellogg & Sons, Inc., Hamburg, N. Y.
729 David J. Stouten, Assistant Secretary, Monarch Elevator Corp., Buffalo.
730 James O. Burns, Pillsbury Mills, Inc., Buffalo
731 Albert S. Krotz, Production Manager, Rex Grain & Milling Co., Inc., Buffalo.
732 W. J. Woody, Assistant Manager, Tindle Milling Co., Springfield, Mo.
733 Robert L. Sullivan, Traffic Manager & Superintendent, Lipscomb Grain & Seed Co., Springfield, Mo.
734 George G. Mairs, Superintendent, Dickinson Feed Plant, Archer-Daniels-Midland Co., Minneapolis.
735 Robert J. Carpenter, Allied Mills, Inc., Buffalo
736 Earl D. Hoople, Cargill, Inc., Buffalo
737 Walter E. Lewis, Superior Grain Corp., Buffalo
738 R. J. MacRae, Marine Elevator Co., Buffalo
739 August F. Megerle, Perot Malting Co., Cheetowaga, N. Y. (Buffalo)
740 Donald G. Haney, Commander-Larabee Milling Co., Buffalo
741 Larry E. Dick, J. J. Gerber Sheet Metal Works, Minneapolis
742 Walter W. Pregler, Kurth Malting Co., Minneapolis
743 Kenneth E. McCue, Pillsbury Mills, Inc., Atchison, Kan.
744 Paul Litson, Pillsbury Mills, Inc., Enid, Okla.
745 Henry Green, Pillsbury Mills, Inc., Clinton, Ia.

746 Ross Curless, Goodrich Bros. Co., Inc., Winchester, Ind.

747 Clayton E. Farrell, Production Manager, Vitality Mills, Chicago.

748 Paul Atkinson, Manager, Norris Grain Co., Toledo.

749 James W. Macdonald, President Macdonald Engineering Co., Chicago.

750 Eugene Soliday, Rahr Malting Co., Minneapolis.

751 A. C. Barbeau, Jr., President and General Manager, S. Howes Co., Inc., Silver Creek, N. Y.

752 William Brazel, Santa Fe Elevator Corp., Chicago.

753 William Mealiff, Santa Fe Elevator Corp., Chicago.

754 E. L. Harris, Uhlmann Grain Co., No. Kansas City.

755 D. E. Wilson, Northwestern Malt & Grain Co., Chicago.

756 John W. Lease, Pratt Food Co., Hamburg, N. Y.

757 Carl E. Kinman, Ohio Farm Bureau, Columbus, O.

758 Walter J. Suever, Plant Superintendent, Delphos Grain & Milling Co., Delphos, O.

Reinstatements

455 Cornelius Halsted, General Mills, Inc., Buffalo

370 Howard Gunnison, Russell-Miller Milling Co., Buffalo

342 Albert V. Murray, General Superintendent, Archer - Daniels - Midland Co., Buffalo.

139 Earl R. Evans, Evans Elevator Co., Champaign, Ill.

Transfers in S.O.G.E.S.

78 Walter W. Kittlesen, K. I. Willis Corp., Moline, Ill., from Oscar Erickson

468 Jack Kitching from Ray Finley, retired, Cooperative Grange League Federation Elevator, Buffalo.

MILLERS GIVE $15,000 FOR MILLING STUDY

Kansas State College was the recipient of a $15,000 fund presented by a group of mills throughout the nation for milling and baking improvement courses for milling and milling research students. Announcement of the fund was made by Milton S. Eisenhower, president of the college, who said that it will be used to finance purchase of a new pilot baking plant and to improve facilities for students. Courses are still to be arranged, but it is thought that the first will begin in January 1948. Kansas State College is the only institution in the United States offering a degree in milling.

Membership Soaring Ahead

Reflecting interest in the undertakings of the Superintendents' Society, the number and caliber of new members joining that progressive body since its highly successful convention in Cedar Rapids has been stimulating to its officers, directors, and committeemen. And once again the additions to the association's general membership residing beyond the confines of grain-center chapters tops the list, accounting for two-fifths of the newcomers. Interesting, also, is the observation that the active Kansas City Chapter, where the 1947 convention will be held on May 15-17, continues to hold its lead among the district units, whereas the Minneapolis and Chicago district units slumped from their usual second and third places down to the bottom of the list.

While the revival of the Buffalo Chapter to an "active" status deprives the "general" membership of a count that would credit them with over half of the new names added to the roster, yet this is to be expected as more and more chapters are set into motion, according to Cliff MacIver, SOGES Vice President in charge of New Membership. "Competition between our various groups is really sharp," he reflects, "and is responsible for exerting that little extra effort that produces the coveted results." Mr. MacIver, who is Assistant General Superintendent of Archer-Daniels-Midland Co., Minneapolis, reports the following groupings of new membership:

General	16
Kansas City	8
Buffalo	5
Omaha	4
Minneapolis	4
Chicago	3
Total	40

LAUNCH PUBLICATION

"The Gleaner," monthly publication of the International Elevator Co., Pacific Grain Co., and McCabe Brothers Co., was recently introduced to customers and employees of the three companies. Editorially dedicated to creating a better understanding among "our customers, our employees and our company of their mutual interdependence in these times when the system of private ownership is under fire both at home and abroad," Ben C. McCabe, president of International Elevator Co., announces that the subjects covered by Editor John E. Hammond will range from farm management to chemurgy. Distribution will be in the Upper Midwest states served by the companies.

BROOKLYN ELEVATOR DOING WELL

Net operating income from last year's operation of the Port Authority Grain Terminal on Gowanus Bay, Brooklyn, was more than $156,300. Surplus from the year's activity amounted to approximately $92,000 after the deduction of the required payment of $65,000 to the State of New York to cover amortization and interest for the period.

The grain terminal was transferred to the Port Authority by the State of New York on May 1, 1944. The property, a 2,000,000 bu. structure with pier and other facilities, was empty and in disrepair when taken over.

In accordance with Governor Dewey's recommendation, the State of New York advanced $1,150,000 as a rehabilitation fund to be repaid by the Authority out of earnings of the terminal at the rate of $65,000 a year, including interest at 2%. The terms of the transfer of the property require the Port Authority to pay $50,000 a year to the State for ten years after the rehabilitation fund has been liquidated.

With a grain storage capacity of about half the total available in the Port of New York, the terminal last year handled more than 2,400,000 bu. grain, most of which was wheat. More than 1,725,000 bu. grain were delivered to the terminal by the railroads during 1945. Only 167,000 bu. arrived by way of the State Canal.

The movement of railroad grain to the elevator was made possible by a revision of the tariffs of the New York Harbor Carriers on July 1, extending the export rail rate to grain traffic consigned to the Port Terminal. A major part of foreign shipments of grain is handled in full cargo lots requiring direct loading to ocean vessels. George A. Cole is General Super.

VETERANS STUDY ELEVATOR MANAGEMENT

The various sessions of the Veterans' Grain Elevator Management School attracted over 100 veterans who were given grain grading lectures and practical paper work to better equip them in their chosen profession. The veterans were guests of the St. Louis Merchants' Exchange, March 17-19.

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SPECIFICATION A
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Time *has* told that "Specification A" gives a complete and enduring protection against moisture and deterioration. Jobs completed years ago are today as good as new—and bone dry.

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As compared with Specification A provides the protection of a coat of armor worn by medivial knights.

Is real economy governed alone by the price you pay for repairing and weatherproofing? No! Workmanship and quality of materials must be taken into consideration. "Cheap jobs" are expensive at any price.

"Specification B" is a first-class, low cost job skillfully executed by highly trained B. J. Many engineers to dress up elevators with an appearance of newness . . . to check deterioration and provide temporary protection against moisture.

It's a B. J. Many job and that means a thoroughly dependable job . . . a low cost quality job that will enable you to economize wisely.

A survey of your requirements will be made upon request and data covering "Specification A" and "Specification B" with price estimate will be submitted for your consideration. No obligation on your part.

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THORIZED AGENTS: Pioneer Sand and Gravel Company, Inc., 901 Fairview Avenue, North, Seattle 11, Washington • North-s Machinery Supply Co., Ltd., 203 Hardisty Street, Fort William, Ontario • Northland Machinery Supply Co., Ltd., Winnipeg, anitoba • Asphalt Services, Limited, 366 Adelaide Street West, Toronto, Ontario.

1946 Fire Loss $13,000,000

UNRECORDED DESTRUCTION BOOSTS APPALLING COST

FIRE DESTROYS PLANT

A rock in some copra being processed was believed to have caused a spark which ignited the product, resulting in the destruction of the equipment in the plant of the Copra Oil & Meal Co., Ltd., Los Angeles. According to assistant general manager Willis Merrill, copra contains 65% inflammable oil, hence the heat during the $500,000 fire was intense.

$350,000 FIRE NEAR MINNEAPOLIS

Six buildings comprising the Farmers & Merchants Milling Co., Inc., of Glencoe, near Minneapolis, were destroyed by fire on March 25 with an estimated loss of $350,000. Firemen from half a dozen communities fought the blaze which was fanned by a high wind. Fire broke out about 12:30 a.m. in the cupola of the elevator, one of the buildings destroyed. A miller in the flour mill, which operated on a 24-hr. basis, saw smoke and turned in the alarm.

EXPLOSION INJURES FOUR

Four employees were injured in a New York City corn refining plant when an accumulation of dust on the 3rd and 4th floors exploded, and considerable damage was done.

$200,000 ELEVATOR FIRE

Roy Rawling's Grain Elevator of Richmond, R. I., the largest in the state, was destroyed by fire recently with an estimated loss of $200,000. The elevator was completely filled with grain at the time.

ANOTHER FEED MILL FIRE

Fire believed to have started from tramp iron in the grinder, destroyed the C. C. Ruth Feed Mill in Cornelius, Ore., with a loss of $150,000.

OVERHEATED BEARING STARTS BLAZE

An overheated bearing is believed to have started a blaze in an Indiana feed mill, resulting in gutting the cupola, damaging the machinery and mill contents.

1946 EXPLOSION AND FIRE LOSS APPALLING

Our 1946 explosion and fire loss, as reported by the National Fire Protection Association is, to say the least, appalling. Piled on top of the terrific explosion and fire destruction soaring during the war when replacement was impossible, the latest year's figures lead the analytical mind to inquire: How long can any industry stand such a toll?

Some fire insurance underwriters report a loss ratio of twice their collected premiums over the past 10-year period. In addition the underwriters have overhead, salaries, et al., to add to their losses after paying out two dollars for every one dollar taken in. That can only spell higher rates if losses continue.

Let's examine the underlying fundamentals. The ability of plant management to earn profits with which to pay salaries and overhead is obviously dependent upon the volume their plants can be made to turn out. If the time required to do a spic-and-span job of housecleaning at the end of each day means the inability to ship an additional one, two, or three cars—then the question resolves itself down to: Do we need the assurance of long and continuous operation over the years to come more than we need extra return?

Would Be Easy If Problem Were That Simple

Of course, the problem isn't anywhere near as simple as that. Disappointed customers, with supplies exhausted, are not going to run the risk of in turn losing their orders, for competition dictates that the firm that has the "mostest of the bestest" is going to have the least difficulty in staying in business longest. So apparently other avenues must be explored.

CHECK FIRE BEFORE LOSS

Firemen checked the blaze in the plant of the Quincy (Ill.) Soybean Products Co. before there was any loss. The fire started in an abandoned chimney and was thought to have been ignited from sparks from the main flue.

What else is open? Simplest and least expensive throughout the years is a modern dust control system, engineered, manufactured and installed by the best talent of proven ability. But, you say, steel is short; such systems are what we want, but we can't get them now. Besides they cost money.

Then the only other solution to the problem for the time being is the allotment of as much time at the end of each day as is necessary to assure safe and spotless premises. Working overtime to clean up, adding one or more to a night shift to wield the broom, or possibly the formation of separate crews to serve many plants that would contract to "primp" up the place every night (and inspect and lubricate the bearings, make minor repairs and adjustments, et al., if desired) seems a plausible alternative. Something MUST be done, and soon.

No In-Between Grades

In the meantime, let's examine our thinking about installing the best in dust control systems. Inferior quality, low capacity, cheaply engineered, and inadequately installed dust collection equipment represents just so much money that might better be given to charity where the investment would do some good. Consequently why wouldn't it be better—in spite of the industry's habit of doing everything in a big way—to launch upon three or five year program of satisfactory dust control equipment installation, plus other housekeeping and safe practices aids? In that way more of us would be assured of having done a great deal to put a stop to these devastating explosions and fire losses, and more of us could acquire the coveted protection that is patently mandatory from reviewing the life, plant, business, capital, and product toll suffered the past five years.

The fire losses listed below, as reported by some of the stock fire insurance companies, probably represent 20% to 30% of the total losses in our industry last year. The depressing figures are:

Date	Loss	Started	Place	Firm	Cause
Mar. 1	$ 293,000	12:30 p.m.	Watertown, Wis.	Fleischmann Malting Co.	Coke or defective motor.
Mar. 16	1,485,000	4:22 a.m.	Alton Ill.	Russell-Miller Mlg. Co.	Explosion in dust collecting room.
Mar. 30	390,000	1:07 p.m.	New Orleans	Rickert Rice Mills, Inc.	Transmission of heat through corrugated asbestos siding from boiler breeching.
Apr. 5	400,000	9:12 p.m.	Winnipeg	Federal Grain, Ltd.	Originated in box car; dust explosions accelerated spread of fire.
May 8	725,000	8:22 p.m.	E. St. Louis	National Oats Co.	Spontaneous ignition of feed in sacks.
June 10	212,000	12:20 a.m.	New Richmond, Wis.	Doughboy Mills, Inc.	Lightning struck 3rd floor reel room.
June 11	150,000	11:40 p.m.	Coudersport, Pa.	Feed mill.	Unknown
July 11	700,000		Ripon, Calif.	Schenley distillery	Explosion and fire.
Aug. 2	300,000	2:00 a.m.	Endicott, Wn.	Endicott Elevator Co.	Unknown
Aug. 6	300,000	7:30 p.m.	Clyde, Wn.	Morrison Grain Co.	Worst of a series of fires which destroyed 500,000 bu wheat storage.
Aug. 27	302,000	7:00 p m	Lubbock, Tex.	Standard Milling Co.	Small afternoon fire in grinding mill extinguished. Flames later discovered in sacks room. As in other losses, explosion did much damage.
Sept. 9	1,750,000	11:45 p.m.	Paris, Ill.	Illinois Cereal Mills Co.	Discovered in basement near several boots, fire thought to be from choke.
Sept. 11	354,000	2:00 a.m.	Lauderdale, Fla.	Broward Grain Co.	Sacked feed
Oct. 4	350,000	3:00 p.m.	Artois, Calif.	Berlinger Brothers	Unknown
Oct. 24	300,000	4:00 p.m.	Hartland, N. B.	New Brunswick Products Co.	Starch drying house spark flashed over dry starch dust and through unprotected openings.
Nov. 29	105,000		Dallas, Tex.	Burrus Feed Mills	
Dec. 8	500,000	2:35 a.m.	St. Boniface, Man.	Red River Grain Co.	
Dec. 19	2,500,000	12:12 a m	Minneapolis	Froedtert G. & M. Co.	Choke
Dec. 28	1,899,000	2:30 p.m.	Minneapolis	Brooks Elevator Corp.	Choke
	$13,015,000				

BOX CAR FIRE

Considerable damage to GLF's properties in Albany, N. Y., resulted from a fire in a box car on an adjacent side track.

$25,000 ELEVATOR EXPLOSION LOSS

An accumulation of dust in one of the bins is believed to have caused an explosion in the grain elevator of the Maritime Milling Co., Inc., Buffalo, N. Y. The blast lifted the roof and did damage estimated at $25,000. Two workmen were injured slightly.

OFFICIAL: —IT'S FINALLY OUT

The Minneapolis fire department, which has kept its hoses going on the remains of the Union terminal elevator since the destroying fire on Dec. 19, removed their equipment on April 3. 105 days of smouldering necessitated their attention.

DON'T BE A "PUSHOVER" FOR A DUST EXPLOSION

Robertson Safety Ventilators beat a dust explosion to the punch . . . take the fire and frightfulness right out of it by relieving pressure . . . preventing *spread* of its destructive force.

Mounted on your elevator leg, Robertson Safety Ventilators provide continuous gravity action that vents dangerous fine dust, thus minimizing the hazard of *primary* explosions.

Write today for descriptive literature. Be on the Safe Side with Robertson Safety Ventilators.

H. H. ROBERTSON CO.

FARMERS BANK BUILDING PITTSBURGH, PA.

A New Type of Bomb for

INVESTIGATING PRESSURES

Developed by DUST EXPLOSIONS

By R. E. DUFOUR, Ass't Chemical Engineer
Underwriters' Laboratories, Chicago

DUST explosions in grain handling and processing plants and industrial equipments frequently develop more destructive effects than would be anticipated from pressures obtained experimentally with dust explosions in available laboratory equipment described in the technical literature. This report describes a new type of bomb that yields results comparable with the destructive effects encountered in practice. The bomb was designed by A. H. Nuckolls, Chemical Engineer, Underwriters' Laboratories, Inc., after many years of research. It is of large internal volume and embodies many new features of construction.

A cylindrical explosion chamber was selected as suitable for the new bomb because the propagation of flame is affected by the size and shape of the reaction vessel. Within certain limits the explosion pressure increases with an increase in the free volume of the vessel.

Its length was based on experimental data obtained in a previous investigation of starch dust explosions in conveyors wherein the maximum pressure effects occurred with flame propagation through a distance of the order of seven feet.

Its internal diameter was made comparable to the internal dimensions of conveyors and similar equipments used in the grain handling and processing industry.

This intriguing article describes a new type of bomb developed for investigating dust explosions under test conditions comparable to the conditions encountered during explosions in grain handling and processing plants and in industrial equipments.

Employing many new features of construction, operation, ignition, and recording, this unique chamber overcomes all previous objections to earlier testing apparatus. Culminating over a decade of study and research, the initial groundwork was started by Dr. A. H. Nuckolls shortly after his extensive experiments proving the successfulness of Chester J. Alger's explosion-proof conveyor-choke at Corn Products Refining Company's plant at Argo. In this undertaking Dr. Nuckolls had the further encouragement and coöperation of this magazine and its staff.

The exploratory tests in the new bomb magnify previous findings and disprove established relationships. Suffice to record that maximum pressures of five atmospheres [75 pounds per square inch] for explosions in corn starch (the most volatile of the grains or grain products) the eight atmospheres for aluminum powder explosions were developed. Little wonder then that monstrous grain plants tumble before such a force.

The magnitude of the explosion pressures obtained strikingly emphasizes the need for taking ALL due precautions in plants and other locations where combustible dusts may be dispersed in air.

Preparation of Dust-Air Mixtures

THE pressure developed in a dust explosion is a function of the concentration of the dust in the air, in addition to other factors. Concentrations of dust in air are commonly expressed in terms of ounces per cubic foot, or milligrams per liter. One milligram per liter is equivalent to 0.001 ounce per cubic foot.

The importance of accurate control of the concentration and the uniformity of distribution of dust in the test mixtures is evident. But there are inherent difficulties in the preparation and maintenance of uniform dust-air mixtures of predetermined proportions, particularly in closed vessels suitable for experimental determination of maximum explosion pressure effects.

When particles of the size ordinarily encountered in dust are dispersed in air the force of gravity immediately causes the particles to fall, but the rate of fall is retarded by the frictional resistance of the air. For spherical particles in still air, the theoretical rate of fall or settling is given by the following relationship, known as Stokes Law:

$$V = \frac{K\, D^2\, (\rho' - \rho)}{\mu}$$

Where: V = rate of fall of the particle
D = diameter of the particle
ρ' = density of the particle
ρ = density of the air
μ = viscosity of the air
K = numerical constant

When the air is in motion, or if an electrical field is present, the relations governing the velocity of settling of the particle are more complex, and are not readily expressed mathematically. Also, when the particles are close together there is mutual interference that hinders settling and the above equation does not apply. In any of the above cases, however, the concentration becomes pro-

gressively nonuniform after the dust has been dispersed.

From the equation given above, it appears that dust-air mixtures tend to become nonuniform with reference to the distribution of various sizes of particles, the larger particles settling more rapidly (density of all particles assumed to be the same). This would have an effect on the explosion because the combustion of dust is influenced by the size of the individual particles. Decrease in particle size (increase in ratio of surface to mass) lowers the low limit of the explosive range. Some industrial dusts are pulverized within close limits, but in many cases the size of the particles varies widely.

Additional complications are introduced when the dust is a mixture of two or more finely divided materials that have different chemical compositions and physical characteristics.

Static Causes Dusty Walls

STATIC electrical charges create nonuniformity in an experimental dust cloud, particularly by causing dust particles to accumulate on the walls of the enclosing vessel. Also the static charges cause some dusts to agglomerate [to unite haphazardly] during and following the formation of the dust cloud.

The experimental difficulties involved in the preparation of uniform dust-air mixtures of predetermined proportions have retarded researches on the theory of dust explosions. These difficulties are not encountered in the preparation of mixtures of gases or vapor in air wherein the process of diffusion favors the formation of uniform mixtures.

Much experimentation was required to devise a method for uniformly dispersing dust within the large explosion bomb. Consideration was given to various forms of jets and nozzles, electric vibrators, combinations of fans, and even to rotation of the enclosure. All these methods had serious disadvantages and were abandoned.

A mechanism was then developed whereby small, rapidly revolving, metal brushes were automatically moved over the inner walls of a closed cylindrical vessel. The brushes were used to disseminate the dust initially and to disperse any dust accumulating on the walls.

Exploratory tests were conducted on a model having a 2½-ft. diameter cylinder provided with glass ends to permit observation of the dust cloud. On the basis of these tests, it was decided to employ this method of dispersion in the final design of the bomb. Because it is recognized that normal variations of atmospheric pressure and temperature have practically no influence on the propagation of flame, no provision was made for controlling the initial temperature and pressure within the dust explosion bomb.

Turbulence

WITHIN certain limits (other factors assumed constant) turbulence increases the explosion pressure attained in an enclosure before combustion is complete; i.e., before the equilibrium state of the chemical reaction is reached.

Turbulent dust-air mixtures are present in much of the mechanical equipment in which dust explosions occur in practice; such as, grinding machinery, conveyors, and exhaust systems.

In the new type of dust-explosion bomb, the initial turbulence in the dust cloud depends on the speed of the revolving brushes, which are driven by a variable-speed electric motor coupled to a speed reducer. This arrangement enables the investigation of the explosion pressures that are obtained under different conditions of initial turbulence.

Source of Ignition

THE igniting source selected for the tests in the new bomb is an electric squib characterized by projection of a hot flame at a comparatively low pressure. Because the electric squib contains an oxidizing compound, the oxygen of the surrounding air is not consumed by the igniting flame. This method of ignition was chosen on the basis of the previously reported research on dust explosions in conveyor systems in which the tests of starch dust-air mixtures included ignition by electric sparks,

arcs, heated aluminum wire, magnesium mixed with barium peroxide, and several types of electric squibs (powder base), with and without the addition of oxidizing compounds.

The location of the source of ignition at one end of the bomb provides the longitudinal distance for flame propagation (7 ft.) which was found to develop maximum explosion pressure effects during the above-mentioned research.

Bomb "Specks"

THE new bomb consists essentially of a horizontal, closed cylinder in which combustible dust is dispersed by two revolving double brushes mounted on a rotating frame, the frame and brushes being driven by a variable-speed electric motor and speed reducer external to the cylinder. Apparatus is provided for measuring and recording the explosion pressure that is developed within the bomb on application of a source of ignition.

The horizontal cylinder forming the explosion chamber is steel, 1 ft. 11¼ in. internal diameter, 7 ft. long, and having a wall thickness of ⅜ in. It is closed at each end with a hinged door of steel, 2 in. thick, each door being secured by 20 steel cap screws, 1¼ in. in diameter. The joints between the doors and the cylinder are provided with asbestos composition gaskets attached to the cylinder.

The net internal volume of the cylinder, allowing for the rotating frame and the revolving brushes, is 20 cu. ft. The cylinder is mounted on structural steel members which also serve as a base for the driving motor and the speed reducer.

Dust Dispersing Mechanism

THE two revolving brushes are each of the double type (bristles on two opposite sides), extending practically the full length of the cylinder. The brush bristles are brass wires.

The brushes are mounted on a rotating frame or spider consisting essentially of a central shaft having a diametrical arm at each end. This shaft is supported by ball-bearings of the sealed type mounted at the center of each door. Pressure seals (stuffing boxes) are provided where the shaft projects through the doors. To facilitate disassembly of the bomb for loading or cleaning, pin clutches are provided near each end of the shaft, within the cylinder. The construction provides an electrical bond between the brush mechanism and the cylinder, which is grounded.

The central shaft is chain-driven by a variable-speed, ½-hp, direct-current motor coupled to a speed reducer of the gear type. When the central shaft is rotated, the motion is transmitted to the brushes by driving wheels bearing against the inner surface of the cylinder, brushes and wheels being held in contact with the cylinder by compression springs enclosed within the arms attached to the main shaft.

The direction of rotation of the brushes is the same as the direction in which the brushes move over the inner surface of the cylinder, dust being dispersed into the cylinder ahead of the brushes. By changing the speed of the driving motor, the speed of the central shaft carrying the brushes may be varied within a range extending from 20 rpm to 60 rpm. The speed of the revolving brushes (rpm) is 11.6 times the speed of the central shaft.

A separate trough, slightly longer than the cylinder, is used for loading dust into the bomb. A weighed quantity of dust is uniformly distributed within the trough which is then inserted through one of the doors, inverted, and withdrawn.

Source of Ignition

The electric squib used as the source of ignition projects horizontally into the cylinder from the inside of the

door at the driven end of the bomb. It is mounted 3 in. horizontally from the main axis of the cylinder. The wires for the electric current supply to the squib are brought out of the cylinder through a stuffing box in the door.

Sampling

A 1-in. diameter opening, normally closed by a threaded plug, is provided in the door at the driven end of the cylinder, this opening being used to obtain samples of the dust-air mixtures. Also, in some tests, a cock is threaded into this opening in order to obtain samples of the gaseous products of combustion remaining after the dust explosion.

Observation Windows

Windows of heavy glass, 4½ in. in diameter, are provided in the doors at both ends of the cylinder. These windows permit observation of the dust cloud prior to the explosion, and also the flame during the explosion. Observations during the explosion are made from behind a barricade, using an optical system of mirrors.

Apparatus for Measurement of Pressure

An indicator of the standardized spring and piston type is used for measuring and recording the explosion pressure. A reference point for time measurements is perforated in the time-pressure records by an electric spark from a high voltage transformer, the primary of which is connected in series with the igniting squib.

In measuring explosion pressures, the inertia effect on the moving parts of the apparatus is a source of error. This phase of the work and other factors influencing the measurement of pressure have been studied in previous investigations. Although the methods of test and the apparatus employed with the new bomb are designed to reduce errors from inertia, friction, and eccentric motion of the parts so far as is practicable, a slight degree of error, including the time lag of the indicator, seems unavoidable.

An electric pressure gauge operating in conjunction with a magnetic oscillograph provided with photographic recording equipment is used for check measurements of the explosion pressure. This pressure-recording device is connected to the bomb at the end opposite to that at which the explosion is initiated.

Explosion Tests

POWDERED food starch (corn starch), 300 mesh obtained from Corn Products Refining Company was dried to constant weight at 70 C (158 F).

Aluminum powder (Alcoa Albron Powder), 100 per cent 325 mesh, 98 per cent 400 mesh, was obtained from Aluminum Company of America. This aluminum powder contained 0.8 per cent by weight of fatty or oily material extractable with ethyl ether.

The initial pressure was atmospheric. The initial temperature (room temperature) ranged from 10.6 to 29.4 C (51 to 85 F). The relative humidity ranged from 39 to 66 per cent.

The electric squib used as a source of ignition was fired five seconds after starting the dust dispersing mechanism.

Measurements were made of the explosion pressure and the time for its development (time measured from firing of igniting squib). The average rate of development of pressure (pressure divided by time for its development) and the maximum rate of development of pressure (maximum slope of pressure-time curve) were calculated. [Since there is a lag in recording the pressure rise, the values for time of development of pressure, and rate of development of pressure, are for purposes of comparison only, and must be considered as rough approximations of the true values.]

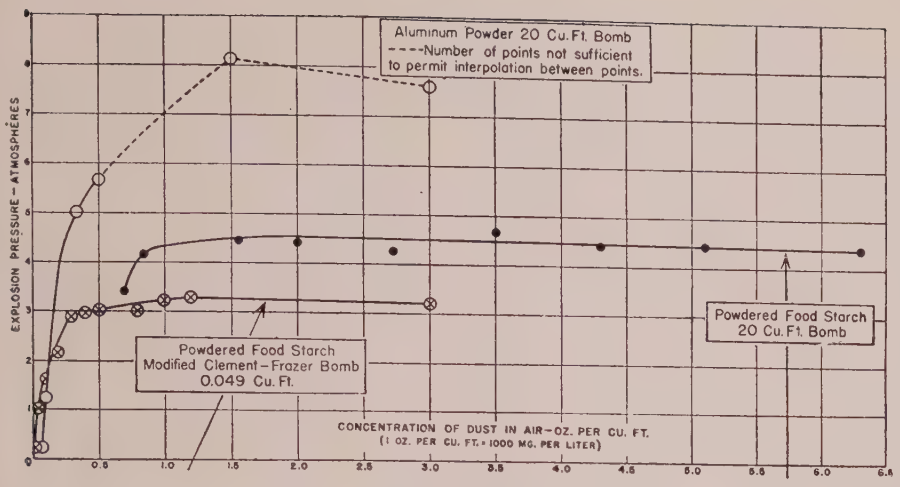


Fig. 1—Dust Explosion Pressures

Results of Tests

EXPLOSION pressures developed by powdered food starch and by aluminum powder, using the bomb of 20 cu. ft. capacity, are shown graphically in Fig. 1, wherein the relative pressure is plotted against concentration of dust air. [Concentrations recorded in Fig. 1 are nominal values (weight of dust in bomb divided by internal volume of bomb). Some research has been done on the determination of the concentration of the dust cloud by using a photoelectric cell and a microammeter to measure the intensity of a beam of light passed through the dust in the bomb, but additional work is needed.] For purpose of comparison, the results of previous experiments conducted at Underwriters' Laboratories, Inc., with the same starch, using a small explosion bomb (modified Clement-Frazier apparatus, 0.049 cu. ft. capacity) are included.

Typical pressure-time records of explosions of powdered food starch and of aluminum powder in the large bomb are shown in Figs. 2 and 3. The pressure rise begins at the RIGHT in these records.

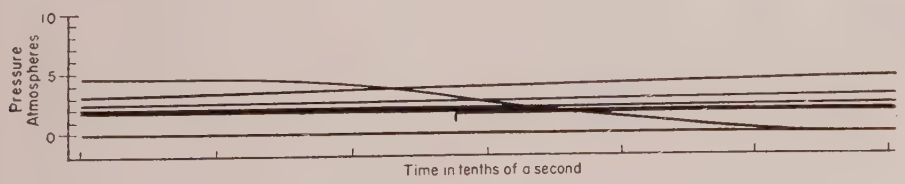


Fig. 2—Pressure-Time Record of Explosion of Powdered Food (Corn) Starch in 20-Cu. Ft. Bomb

Dust Concentration: 3.5 oz per cu ft
Barometric Pressure: 750 mm Hg
Initial Temperature: 19.4 c (67 F)
Relative Humidity: 50 per cent
Maximum Pressure: Approximately 5 atm (75 psi)
Time for Development of Maximum Pressure: 0.651 sec
Average Rate of Development of Pressure: Approximately 7 atm (105 psi) per sec
Maximum Rate of Development of Pressure: Approximately 16 atm (240 psi) per sec
[Atm=atmospheres. Psi=pounds per square inch.]

Dust Concentration: 1.5 oz per cu ft
Barometric Pressure: 748 mm Hg

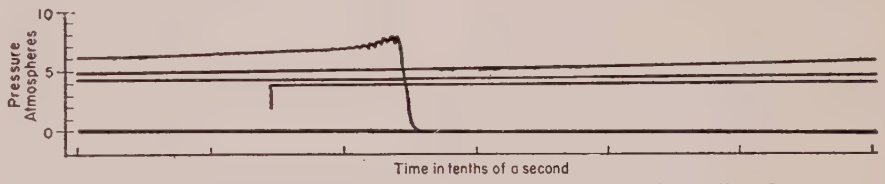


Fig. 3—Pressure-Time Record of Explosion of Aluminum Powder in 20-Cu. Ft. Bomb

Initial Temperature: 29.4 C (85 F)
Relative Humidity: 48 per cent
Maximum Pressure: Approximately 8 atm (120 psi)
Time for Development of Maximum Pressure: 0.092 sec
Average Rate of Development of Pressure: Approximately 90 atm (1350 psi) per sec
Maximum Rate of Development of Pressure: Approximately 966 atm (14,490 psi) per sec
[Atm=atmospheres. Psi=pounds per square inch.]

Observations on Test Results

THE exploratory tests using the new type of bomb have developed data that show the general form of the pressure-concentration curves (Fig. 1) for powdered food starch and for aluminum powder. The tests have not been carried far enough to establish the exact form of the curves.

As stated in a previous study, there is a threshold concentration of dust in air (known as the lower limit of flammability) below which propagation of flame, even in the presence of a source of ignition, does not occur. Theoretically, there is also an upper limit of flammability of dust above which there is no propagation of flame, but in the case of grain dust this phase of the reaction has not been defined and no theoretical or empirical upper limit has been established. Actually, on progressively increasing the concentration of dust in air above its low limit, there is a progressive increase in explosion pressure (other factors affecting the reaction assumed constant) until a concentration yielding a pressure approaching the maximum is reached, after which a considerable increase in the concentration of dust apparently may occur before the reaction is retarded or the flame smothered.

The magnitude of the explosion pressures developed in the new bomb is in contrast to the values obtained in the small vessels commonly used. In tests with powdered food starch, using the new bomb, the maximum pressure obtained was approximately 5 atmospheres (75 lbs. per sq. in.) with a dust concentration of 3.5 oz. per cu. ft. Previous experiments at Underwriters' Laboratories, Inc., with the same starch, using a modified Clement-Frazer apparatus, indicated a maximum explosion pressure of approximately 3 atmospheres (45 lbs. per sq. in.) with a concentration of 1.2 oz. per cu. ft.

In tests with aluminum powder, using the new type bomb, the explosion pressures were of the order of 1 atmosphere (15 per sq. in.) with a concentration of 0.1 oz. per cu. ft. and 6.0 atmospheres (90 lbs. per sq. in.) with a concentration of 0.5 oz. per cu. ft. The maximum explosion pressure obtained in the series of tests with aluminum powder was somewhat above 8 atmospheres (120 lbs. per sq. in.) with a concentration of 1.5 oz. per cu. ft. Although this has not been established, it appears that the aluminum dust explosions approached detonation. The intensity of the explosion developed in this type of bomb is further indicated by numerous deep pits in the observation window caused by impact of particles during explosions of aluminum powder.

Previous investigators using a

modified Clement-Frazer apparatus (0.049 cu. ft. capacity) have reported explosion pressures of 23 lbs. per sq. in. and 40 lbs. per sq. in. with concentrations of 100 mg and 500 mg of aluminum dust per liter, respectively.

Gliwitsky reports a maximum explosion pressure of 11.6 atmospheres for very finely divided aluminum powders (0.3 to 1.3 microns) obtained in a bomb of 1.518-cu. ft. capacity, the dust-air mixtures having high initial turbulence. It will be noted that the aluminum powders used by Gliwitsky are of much smaller particle size than the commercial grade of aluminum powder used in the exploratory tests in the new type of bomb. It is well known that the maximum pressure developed in a dust explosion increases within certain limits as the size of the particle is decreased.

Summary

A NEW type of explosion bomb for the investigation of the pressure developed by dust explosions, equipped with an internal rotary brush mechanism for uniformly dispersing dust in air, enables investigations of the hazards of dust explosions which yield experimental values of an order comparable to the destructive effects encountered in practice.

Explosion pressures of the order of 5 atmospheres (75 lbs. per sq. in.) for powdered food (corn) starch and 8 atmospheres (120 lbs. per sq. in.) for aluminum powder have been obtained, using the new bomb. Further research on the characteristics of dust explosions, including tests of other hazardous dusts, is contemplated.

The magnitude of the explosion pressures referred to above emphasizes the need for taking all due precautions in factories or other locations where combustible dusts may be dispersed in air.

REFERENCES: On application.

INSPECTION DOOR FOR CHOKES

Frank E. "Slim" Carlson of the Underwriters Grain Ass'n was a Minneapolis visitor recently and presented an idea which is worthy of consideration. His recommendation was that a sizeable inspection door be installed on the side of the leg casing adjacent to the head pulley so that lagging of the pulley might be inspected immediately following a choke-up—even before the choke is relieved—to determine whether there is any fire or heat at or near the head pulley.—Clifford A. MacIver, A-D-M Co., Minneapolis.

DRIER CATCHES FIRE

Insolubles which caught fire had to be emptied before firmen could put out the blaze in a Nebraska grain processing plant. Two cyclone driers were damaged.

FUMES SET ALARM

Fumes given off from an overheated motor caused a fire alarm to be sounded in a Nebraska plant recently. Fortunately there was no blaze.

DRIER FIRE COSTLY

Fire starting in the Scott County Milling Co.'s drier at Sikeston, Mo., on the night of Jan. 22 destroyed the drier building, 25,000 bu of grain, and cost $25,000, according to Lee Bowman, manager.

SLIPPING BELT CAUSES FIRE

A slipping belt in a Michigan elevator's drier started a fire that did considerable damage.

SPONTANEOUS COMBUSTION BLAMED

Spontaneous combustion in one of the grain bins was blamed for a 7 a.m. fire in a Nebraska elevator. However, firemen removed the tons of meal therefrom without pouring water on the blaze and confined the loss to a low figure.

OVERHEATED CONVEYOR BELT

An overheated conveyor belt started a fire which caused considerable damage in a Louisville plant recently.

DRIER FIRE

Fire in the drier shaft of an East St. Louis terminal burned 2,000 bu corn and did $10,000 damage to the building.

TOUGH SPOT FOR FIGHTING

Fire, between the metal and wooden floor of a 40 foot grain pit at an Ohio plant caused by a spark from a grinder, spread to a conveyor, causing considerable damage. Firemen worked in relays to extinguish the blaze, being lowered by rope ladders into the pit and working with masks.

URGES RECEIVING PIT SCREEN

Removable screens of durable construction, 1½" or 2" mesh, should cover gratings at receiving pits where grain is unloaded for drying, according to "Slim" Carlson—the purpose being to screen out sticks and combustible materials which might clog pockets in the drier and start fires—Clifford A. MacIver, A-D-M Co., Minneapolis.

GIVES UP VACUUM IDEA

We have about given up the idea of a vacuum cleaning installation, and are inclined to let the project rest until such time as more efficient and less costly vacuum cleaning devices come on the market.—Charles J. Winters, Superintendent, Public Grain Elevator, New Orleans.

Expect 17% Jump In Car Loadings

GRAIN AND GRAIN PRODUCTS TO HIT NEW PEAK

On the basis of estimates compiled from the 13 Regional Shippers Advisory Boards, carloadings of grain and grain products will hit a peak during the second quarter of 1947. Loadings of the 32 principal commodities, including grain and grain products, will, in comparison, rise 33.2%, totaling 8,149,699 cars against 6,118,419 actually loaded for the same commodities in the corresponding period of last year.

Leading the increases are ore and concentrates, up 105.3%; coal and coke, up 73.7%; automobiles and trucks, up 59.1%; iron and steel, up 27.1%, but other metals up 53.7%; cottonseed, soy bean-vegetable cake and meal, except oil, up 44.1%; vehicle parts up 37.5%; agricultural implements and vehicles other than automobiles, up 31.9%; brick and clay products up 19.9%; machinery and boilers up 19%; lumber and forest products up 13.6%; sugar, syrup and molasses up 12.4%; gravel, sand and stone up 11.8%, and salt up 11.6%.

On the other hand there will be decreases in loadings of other principal items, including: potatoes, 17%; other vegetables, 12.5%; livestock, 11.5%; hay, straw and alfalfa, 7.6%; poultry and dairy products, 6.1% and citrus fruits, 2.2%. Regardless of these decreases, the net will still be up 33.2% if these estimates turn out as anticipated.

This is the way the actual 1946 and the estimated 1947 figures stack up on the carloadings forecast:

	1946	1947	Increase
All grains	283,555	331,907	17.1%
Flour, meal, mill products	216,360	253,651	17.2%
Soybean, cottonseed - vegetable cake and meal, except oil	5,904	8,506	44.1%

CHARGES BOOSTED

Buffalo grain elevator operators have been authorized to increase their charges for handling grain from 1c to 1½c per bu.

GRAIN EXPORTS SOARING

Approximately 56,599,000 bu of grain and grain products were exported in March, it is estimated by the USDA, bringing the 9 months total to 360,418,000 bu, of which 277,775,000 bu were wheat and flour equivalent. About one-third of the total was exported through regular commercial channels, the balance through PMA. The March estimate includes: 501,000 tons of wheat, 500,000 tons of flour, 338,000 tons of corn, and 125,000 tons of other grains.

An estimated 20,000 long tons (in wheat equivalent) of Canadian flour were exported from the U. S. in March, bringing this total to 155,000 long tons (5,936,000 bu in wheat equivalent). Allocations for June total 39,609,000 bu of wheat, flour, corn, grain sorghums, oats, and barley.

EXPECT OPENING OF NAVIGATION

At this writing, ice in Lake Erie is still very heavy in many locations, according to authorities, however the Great Lakes should be opening before too long provided the thermometer keeps inching its way upwards. Strong favorable winds of several days' duration would break up present ice fields enough to permit many winter storage vessels in most ports to sail.

FIRST LAKE GRAIN SHIPMENT

With first grain shipment via lakes this season, the steamer C. B. Randall left Chicago for Erie, Pa., on Saturday, April 5, with 449,000-bu. corn aboard.

CARLOADING AHEAD OF '46

Carloadings of grain and grain products continue to exceed those of last year, according to official figures, and were for the weeks ending:

	1947	1946	1945
March 29	51,256	42,631	46,560
March 22	53,717	43,457	45,841
March 15	51,568	48,371	44,070
March 8	51,325	47,160	40,650

This tonnage, which has averaged over 50,000 cars per week for some time, is 1.4% ahead of last year, and 23.8% ahead of the 1945 movement on cumulative volume.

Every employee in an organization is an advertising man!—Phoenix Flame.

RECORD WORLD CORN CROP

The latest estimates, according to the USDA, indicate that the world corn crop for 1946-1947 was the largest ever produced, totaling 5.4 billion bushels. This is 8% larger than the previous year's total and 13% larger than the pre-war average, 1935-1939.

CANADIAN WHEAT SHIPMENTS TO U.S. DROP

Canadian wheat shipments to the United States from Aug. 1 to Feb. 20 dropped 48,109,656 bu. as compared to the same period last year. The greater part of this year's 11,734,035 bu. was sent to Erie and Buffalo.

BUSY EXPORTING FROM STOCKTON

The Stockton Elevator was under lease to the Army and for other purposes during the war. At present the available docks are in use to load grain for foreign export.

The present private lessees may be contacted by writing E. D. Wilkinson Grain Co., 4 W. Weber Ave., Stockton, Calif.—I. J. Stromnes, Sec'y, California Hay, Grain & Feed Dealers Ass'n, Sacramento.

CCC GRAIN PURCHASES

Cumulative grain purchases by the Commodity Credit Corp. since last July are announced as: wheat, 155,100,926 bu.; corn, 56,933,000 bu.; barley, 12,577,581 bu.; oats, 7,236,500 bu., and flour, 2,500,000,000 lb. All purchases were made to fill export allocations.

MILITARY GRAIN AND FLOUR RELIEF FEEDING FIGURES, 1946

Military government relief feeding in occupied countries as released in figures provided no breakdown for the different occupation zones but totalled up to an amount in high numbers. Over 57 million bushels of grain and 767,795,242 lb. of wheat flour were sent for relief feeding; grains sent were 47,800,000-bu wheat; 6,080,000-bu of corn; 2,540,000-bu oats, and 775,000-bu barley.

Over 140 million lbs. of wheat and 204,000 lbs. of rye were provided for overseas army personnel, prisoners of war and German civilian laborers at army posts.

JANUARY FLOUR PRODUCTION SETS ANOTHER RECORD

Government figures released March 24 showed that flour mills began the year 1947, as in 1946, with an all-time high production of wheat flour, according to the Bureau of the Census. Reported production during January of this year amounted to 27.9 million sacks compared with 26.1 million sacks in January 1946. During the intervening period, two other record totals were reported; 26.1 million sacks in October and 26.2 million sacks in December. This record production undoubtedly was due to the high export demand.

GRAIN RESEARCH ADVISORY COMMITTEE

Appointment of a Commodity Advisory Committee which will represent the grain, seeds and kindred industries in the development of plans for using the Research & Marketing Act of 1946, was just announced by the USDA.

Serving will be: Frank A. Theis, President, Simonds-Shields-Theis Grain Co., Kansas City; A. E. Staley, Jr., President, A. E. Staley Mfg. Co., Decatur, Ill.; Atherton Bean, Executive Vice President, International Milling Co., Minneapolis, and M. W. Thatcher, President, National Federation of Grain Co-operatives, St. Paul, among others.

EVERYONE BUSY DRYING

You might be interested to know that Duluth elevators have installed several new oil burning driers during the past few years, and right now everybody is busy drying corn. Last year we installed an oil burning drier at our Elevator "H." We had an old brick building and installed the new drier absolutely with our own men, without any assistance from anyone —even a consulting foreman from the manufacturers. I am glad to say that our men did an excellent job and that the drier has worked fine—and is much more economical than we expected it to be.

As you know we have very cold weather in this climate, sometimes as low as 30° below, but we still keep on drying, and the automatic devices in connection with the drier keep it working in fine shape in spite of the changes in the outside temperature.

I understand there is a big drying program in Chicago, too. I think it is quite remarkable the amount of corn being dried by Chicago elevators down to a very low moisture and the large amount which has been sold to the government for export out of Baltimore.—Cecil C. Blair, Manager, Norris Grain Co., Duluth.

GEORGIAN BAY FROZEN OVER

We have had a rather severe winter insofar as snow is concerned, possibly the worst in several years, but rather pleasant in spite of that. There is no indication at the present time of navigation, as Georgian Bay is still completely covered with ice. However, a few warm days could make a great difference.

We note that the SOGES convention is to be held in Kansas City on May 15-16-17, and I sincerely hope that arrangements are progressing smoothly and that you have a very good convention.—Norman D. Broadway, Managing Director, Collingwood (Ont.) Terminals, Ltd.

A LOT OF PEOPLE TO FEED

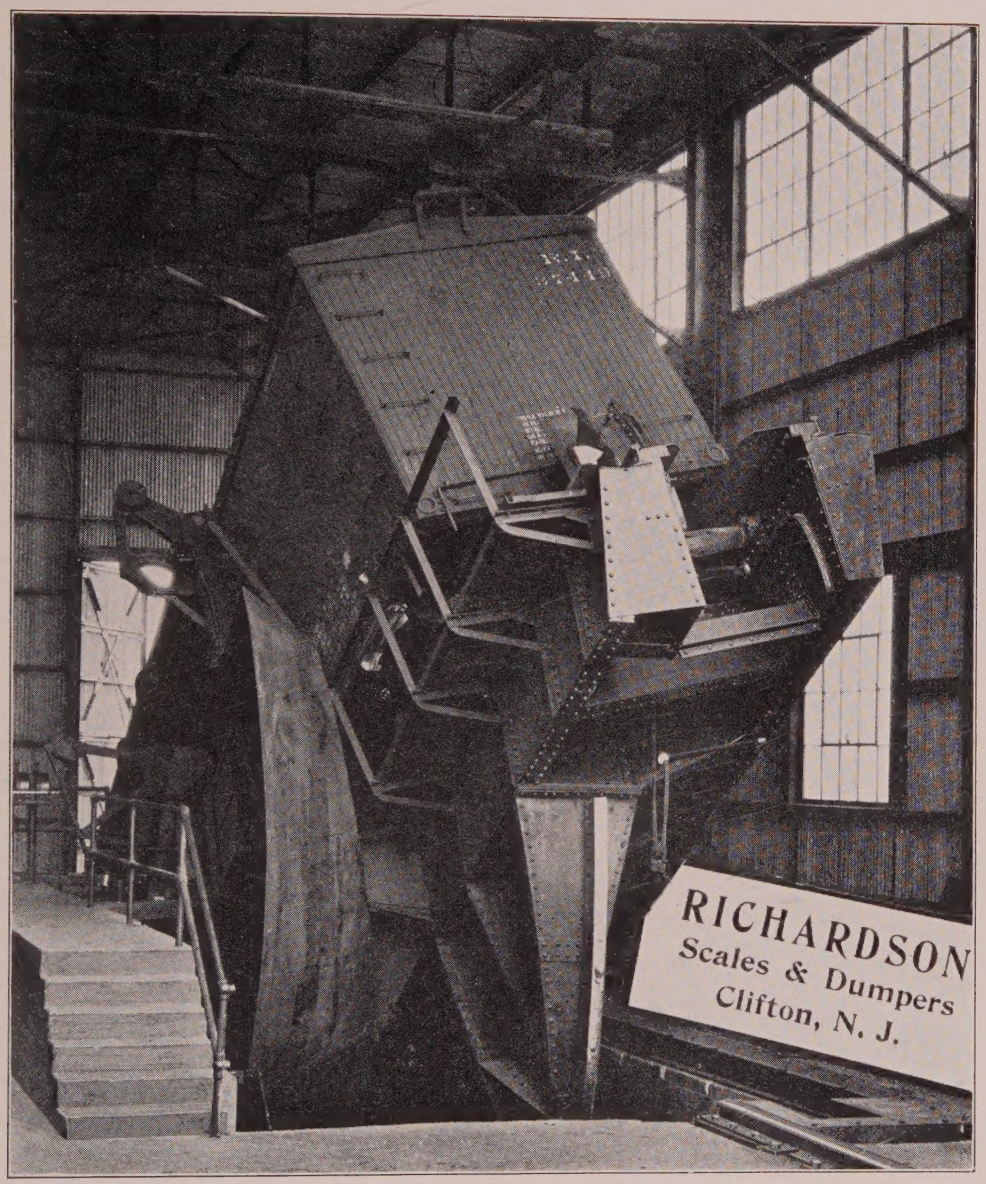
According to a special report just released by the Bureau of the Census, the total population of the United States as of January 1 of this year is tentatively estimated at 142,656,000. This figure represents an increase of nearly 9,600,000 since 1940.

HIGH WINDS

High winds in Duluth did considerable damage to some of the Duluth elevators within the past few days.

SOLVE YOUR UNLOADING PROBLEMS ALL AT ONCE WITH THE

RICHARDSON BOX CAR UNLOADER



Cuts costs of unloading —Minimum power required.

Minimizes Labor Turnover.

Eliminates Overtime and Night Shifts.

Prevents damage to Grain Doors.

Avoids demurrage expense.

Unload your cars with the Richardson Box Car Unloader at three times the speed of 1/5 the cost of unloading by power shovels.

Installations this year will include:

Ogilvie Flour Mills Company, Ltd., Ft. William, Ont.

Eastern States Cooperative Mills, Tonawanda, N. Y.

Eastern States Cooperative Mills, Huron, Ohio

Peavey & Company, Council Bluffs, Ia.

Peavey & Company, Duluth, Minn.

Guaranteed to unload 10 cars hourly.

MAKE PREPARATIONS NOW TO KEEP PACE WITH SEASONAL MOVEMENT OF GRAIN AND OPERATE AT "PEAK" CAPACITY

Write today for Catalog 2140-5 to

RICHARDSON SCALE COMPANY

Clifton, New Jersey

Chicago Philadelphia | **Minneapolis San Francisco** | **Wichita Atlanta** | **Omaha Buffalo** | **New York Boston**

At the Kansas City SOGES convention, May 15-16-17, you'll meet (left to right): General Convention Chairman Ward E. Stanley and Chapter Vice President George Spafford, both of Standard Milling Co.; Chapter Secretary Orrin E. Kinman, Cargill, Inc., and Chapter Director Roy L. Herod, Langdon Supply Co. See you at the Hotel Continental!

TOUSLEE SUCCEEDS RICHARDSON

Victor Touslee succeeds Willis Richardson as manager of the Denver Elevators Division of Colorado Milling & Elevator Co., Denver.

FRIEL TO EMPORIA

Bernard Friel, formerly of Kansas City and Minneapolis, is now Field Representative of The Kansas Soybean Mills, Inc., Emporia, Kan. Active in SOGES circles, he recently served as Secretary of the Kansas City Chapter.

BROSHARD SUCCEEDS ENDRESS

John P. Broshard, formerly of Portland, Ore., succeeds R. E. Endress as manager of Archer-Daniels-Midland Co., at Buffalo. Mr. Endress resigned to engage in business on his own account, as reported in these columns.

JAKE KINTZ UP AND AROUND

Jake Kintz, well known Cedar Rapids supplier of specialty equipment for the industry, is back on the job, not quite "fit as a fiddle" yet, he writes, but getting well from his prolonged illness at a good clip.

EVANS BACK IN HARNESS

Earl R. Evans has rejoined the Evans Elevator Co., Champaign. Hereafter he will act as warehouseman, compile the daily reports, and be in charge of grain grades. "Wish to renew my membership in the SOGES," he writes.

TOM LUBY JOINS SOYA CORP.

Thomas G. Luby, recently returned from Lima, Peru, where he was general superintendent of Compania Molinera del Peru, has been named superintendent of the Hagerstown, Md., plant of the Soya Corp. of America. Effective April 15th, Tom will have charge of the 1000 cwt. soy flour unit.

STEEL WANTS COPIES

Have you a copy of Dedrick's "Practical Milling" which you are finished with? If so, you'd be doing George H. Steel, Ralston-Purina Co., 835 S. 8th St., St. Louis 2, Mo., a big favor if you'd sell it to him.

George has given the readers of GRAIN innumerable good safety ideas, among other worthy contributions, and if our readers are able to reciprocate through digging up a copy of this text for him, we know he'd appreciate it very much indeed. Will you look? Thanks.

DON HANSEN TO CARGILL

Don Hansen, for several years Safety Director of the International Milling Co., Minneapolis, has become associated with the Engineering Department of Cargill, Inc., in its Twin City headquarters. Don did a great deal to further the cause of safety efforts among all types of plants in the industry while he was with International, and at the time of his change he was serving as News Letter Editor of the Food Section of the National Safety Council.

DUNHAM DIES

George S. Dunham, for many years superintendent of the Canadian National Grain Elevator on the east side of the St. John harbor front, died unexpectedly Jan. 12 of a heart condition. He lost a leg in the first World War, and last September fell, breaking his remaining leg.

OLIVER, GRAY LEAVE SUPERIOR

Victor Oliver, well known officer, stockholder, and field representative of the Superior Separator Co., Minneapolis, severed his connection with the firm just prior to the retirement of C. C. Gray, President. Both men had been previously associated with the Hart-Carter Co., also of Minneapolis. Mr. Gray was quite an inventive genius, and in earlier years personally contacted the industry.

Weevil-Cide SPLITTERS

SURE TEST

Two small colored boys were sitting on a curb. One turned to the other and said, "Ah's seben now. How old is yo'?"

"Ah doan know. Ah guess Ah's seben, too."

"Does yo' dream of wimmen?"

"Nope."

"Yo's only six."

* * *

MAN OR MOUSE?

A drunk was caught and knocked down in a New York subway rush. They took him home and a policeman knocked on the door.

"Who is it?" called the wife.

"Your husband," said the cop. "He was crushed flat as a pancake in the subway rush."

"I'm dressing," said the wife. "Just slide him under the door!"

* * *

SIMILAR

Doctor: "Mandy, have you ever been X-rayed before?"

Mandy: "No, sah! Ah ain't nevah been X-rayed befo', but Ah's been ultra-violated."

* * *

QUALIFICATIONS ESTABLISHED

"You're a contemptible cheat," said one lawyer to his opponent.

"You're a cheap liar," returned the other.

Judge (dryly): "Now that counsel have identified each other, let's proceed with the case."

SANFORIZED

He: "Do you shrink from kissing?"

She: "No, if I did I'd be nothing but skin and bones."

* * *

UP TO PAR

The big liner was rolling and pitching heavily and the passengers were not too happy. One of the ship's officers walked over to a young man who was bending miserably over the deck rail. "What's the matter, lad? Weak stomach?"

"Weak stomach, hell!" said the unhappy voyager. "Ain't I puttin' it as far as the rest of 'em?"

* * *

SUBTRACTION

The housewife heard a crash in the kitchen. "More dishes, Mandy?" she called.

"No, ma'am," answered the maid. "Less!"

* * *

FORESEEABLE HAZARD

Insured: "I want justice. The policy tells right here how much you should pay me for a disabling accident."

Adjuster: "But, my dear fellow, as I've already explained, the fact her father came home unexpectedly doesn't make it an accident."

* * *

MISCALCULATED

Mose: "How come Sam is in de hospital? What happened?"

Amos: "Oh, he just come down de ladder ten minutes aftah de man tuck it away."

* * *

PERMISSIBLE ACTIVITY

Doctor: "It's a heart condition. You've got to take good care of yourself, man. You must avoid all forms of excitement."

Patient: "Can't I even look at them on the street?"

* * *

RETURN BOUT

Judge: "So you and your wife have been fighting again, Grogan? Liquor?"

Grogan: "No, your Honor. This time 'twas her that licked me."

* * *

UP TO HER

"Is this the Weather Bureau?"

"Yes, ma'am."

"What about a shower tonight?"

"It's okay with us; take one if you need it."

* * *

UNPREPARED

Golf instructor: "Better use your brassie here."

Maisie: "Gosh, I didn't wear any."

* * *

NOTHING TO LOSE

Bob: "Could you lend me ten dollars?"

"Dick: "Sorry, old man, but I never lend money. It ruins friendship."

Bob: "Don't let that worry you. We never were what you'd really call good friends."

* * *

CEILING ZERO

Husband (at phone): "Why, I don't know. You better call the weather bureau."

Wife (anxiously): "Who was that?"

Husband: "I don't know. Some goof wanting to know if the coast was clear."

* * *

TIME TO SPARE

A colored man called at the hospital and said, "Ah called to see how mah fren' Willie Jones was gettin' along."

The nurse said, "He's getting along fine; he's convalescing now."

"Well," said the visitor, "Ah'll jes' sit down and wait 'til he's through."

GOLD BY THE BUCKET LOAD

GRAIN ELEVATOR OPERATORS MAKE RICH STRIKE IN "NU-HY" BUCKETS!

YES, Elevator and Mill operators everywhere are actually saving "gold" through increasing their capacities and lowering the all-important time factor so essential in bulk material handling. "NU-HY" Buckets save time and money by providing maximum efficiency at small cost.

THE Nu-Hy GRAIN BUCKET

PATENTED AND TRADE MARK REG. U.S. PAT. OFF.

GOLD *is where you find it!*

in desert wastes; in the depths of the oceans; Right in your own Mill!

TAKE your capacity limitations for example. "NU-HY" Buckets can and will increase your capacity. We'll prove it! Send for Form 76 which will enable us to make an analysis of your present equipment and operations. Our recommendations may reveal "hidden gold" right in your own mill! This places you under no obligation.

THE *LAST WORD* IN BULK MATERIALS HANDLING

Here's what the design features of the "NU-HY" Mean to You . . .

- **The high lip (high front) is scientifically positioned to scoop up a full load . . . retain it and avoid premature discharge at head pulley.**
- **The high ends (high sides) prevent spillage in up leg and over head pulley . . . shaped to fit contour of adjoining buckets, also permit continuous spacing if desired.**
- **The bolt hole position avoids "hinging" action when bucket passes over boot and head pulleys . . . directs pick-up and discharge. Bolt hole indentations act as lock nuts, and embed bolt heads, thus improving belt traction.**

Nu-Type FLOUR MILL BUCKET

PATENTED AND TRADE MARK REG. U.S. PAT. OFF.

FOR ELEVATING FLOUR AND SIMILAR SOFT STOCKS

- They are especially designed to do away with the evils of AERATING-BLOWING-DUSTING. High sweeping sides—shelf bottom—wide open front—side vents (patented) are four features of "NU-TYPE" design that make for capacity increases of astounding proportions.

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